AC Power
For *Business-Critical Continuity™*

Liebert® MPX™

User Manual—Global Applications

EMERSON
Network Power

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IMPORTANT SAFETY INSTRUCTIONS

MPX™ PRC™: Power Rail Chassis

MPX PEM™: Power Entry Module

MPX BRM™: Branch Receptacle Module

MPX IPC™: Input Power Cord

MPX RPC™: Rack PDU Card

SAVE THESE INSTRUCTIONS

WARNING

Risk of arc flash and electric shock. Can cause equipment damage, injury or death.

The Liebert® MPX contains hazardous voltage. Follow the warnings and cautions in this document to avoid serious injury or death from electric shock.

Read This Manual

This manual contains important safety instructions. Read all safety, installation and operating instructions before installing a Liebert MPX. Adhere to all warnings on the unit and in this manual. Follow all operating and user instructions. Observe all cautions and warnings in this manual.

Install in Appropriate Location

The Liebert MPX must be installed in a restricted-access location. A restricted-access location is an area where access is possible only through the use of a tool or lock and key or other means of security, and is controlled by the authority responsible for the location.

Operate the Liebert MPX in an indoor environment only within an ambient temperature range of 41°F to 131°F (5°C to 55°C) with a relative humidity of 0% ~ 95%, non-condensing. Install it in a clean environment, free of conductive contaminants, moisture, flammable liquids, gases and corrosive substances.

Qualified Personnel Only

Emerson strongly recommends that the MPX PEM be installed only by an individual who has been properly trained and qualified to perform electrical work.

Only personnel who understand the precautions in this manual should be permitted in the Liebert MPX's restricted access location.

Not for Use in Safety-Critical Applications

The Liebert MPX is designed to deliver power to information technology and telecommunication equipment. The Liebert MPX is not intended for use with life support or other designated critical devices. If uncertain about its application, consult your local dealer or your Emerson representative.

Install MPX PEM Before Connecting Power

Whenever the MPX PEM is connected to power, the connectors on the bottom are energized with hazardous voltage.

Connect input power only after:

- the MPX PEM (Power Entry Module) is properly installed on the MPX PRC (Power Rail Chassis)
- the MPX IPC (Input Power Cord) is properly connected to the MPX PEM

Disconnect power before unlocking the connector screws that attach the PEM to the PRC. Never remove a PEM from the power distribution unit while input power is connected. The PEM is not hot swappable.

Only one MPX PEM (Power Entry Module) should be connected to an MPX PRC (Power Rail Chassis). Failure to comply could result in serious injury or equipment damage.

Do Not Open Covers or Insert Objects

Never open or remove the cover of any Liebert® MPX™ module, with exception of the Liebert RPC™ cover on the MPX PEM module. Never insert any foreign object into a Liebert MPX, particularly into the power bus. Never insert any foreign object into an MPX PEM™.

An exception is that the MPX RPC provides a small hole between the display and sensor RJ-45 connectors to reset the card. See **Figure 4** to find the hole location.

Do Not Service

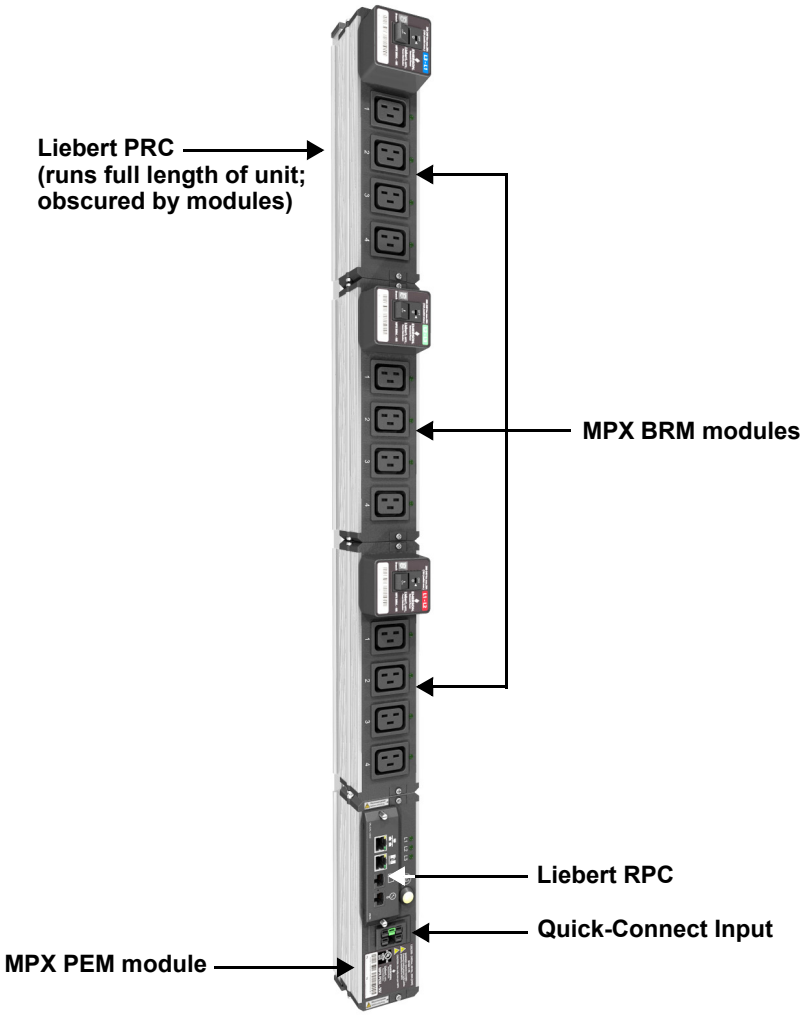
Liebert MPX modules contain no user-serviceable parts. If you need support or have questions about your Liebert MPX, contact Emerson® Network Power Distributed Processing Applications or your local Emerson representative. Do not attempt to service this product yourself.

1.0 LIEBERT® MPX™ INTRODUCTION

The Liebert MPX is an Adaptive Rack PDU (power distribution unit) built with modular and scalable components that can be installed and reconfigured on-site to meet varying input and output power connectivity needs. The flexibility of the modules requires that the installer ensure that the modules match the power requirements of the application. Failure to do so could result in damage to the Liebert MPX and connected components. The Liebert MPX Adaptive Rack PDU family consists of the following components:

- MPX PRC™—(Power Rail Chassis) distributes intermodule power, communications and serves as the mounting base for all Liebert MPX components.
- MPX PEM™—(Power Entry Module) delivers power to the Liebert MPX and includes provisions for remote and local communication options. Detachable and non-detachable cord versions are available.
- MPX IPC™—(Input Power Cord) is a detachable input power cord required for some versions of MPX PEM. A variety of single- and three-phase plug types are available.
- MPX BRM™—(Branch Receptacle Module) distributes overload-protected output power to user loads. Hot swappable design allows for reconfiguration with choice of receptacle type, quantities, and monitoring / control to the receptacle level.
- Liebert RPC™—(Rack PDU Card) optional network interface card to manage and monitor power distribution to connected equipment; installs in the MPX PEM communication card slot. Allows for multiple Liebert MPXs to be interconnected and managed from a single network connection.
- RPCBDM™—(Basic Display Module) optional display for local monitoring of Liebert MPX units. Cord-connected, allowing user to select rack mounting location.

Figure 1 Liebert MPX assembly diagram



2.0 LIEBERT® MPX™ SYSTEM MODULES

2.1 MPX PRC™—Power Rail Chassis/Power and Communication Bus

The MPX PRC acts as the fundamental building block of the Liebert MPX. Power and Communications buses are integrated into the full length of the MPX PRC. The MPX BRM™ (Branch Receptacle Modules) and MPX PEM™ (Power Entry Module) lock onto the MPX PRC, adding power input, power output, monitoring and management, depending on the type of module.

The MPX PRC is available in two lengths:

Part #	Length, mm (in)	Typical Cabinet Size
MPXPRC-V1880XXX	1880 (74.07)	42U
MPXPRC-V1035XXX	1035 (40.78)	23U

The MPXPRC-V1880XXX will accommodate up to six standard size (266 mm) MPX BRMs (Branch Receptacle Modules); the MPXPRC-V1035XXX will accept up to three MPX BRMs. Each size of MPX PRC also accepts a single MPX PEM.

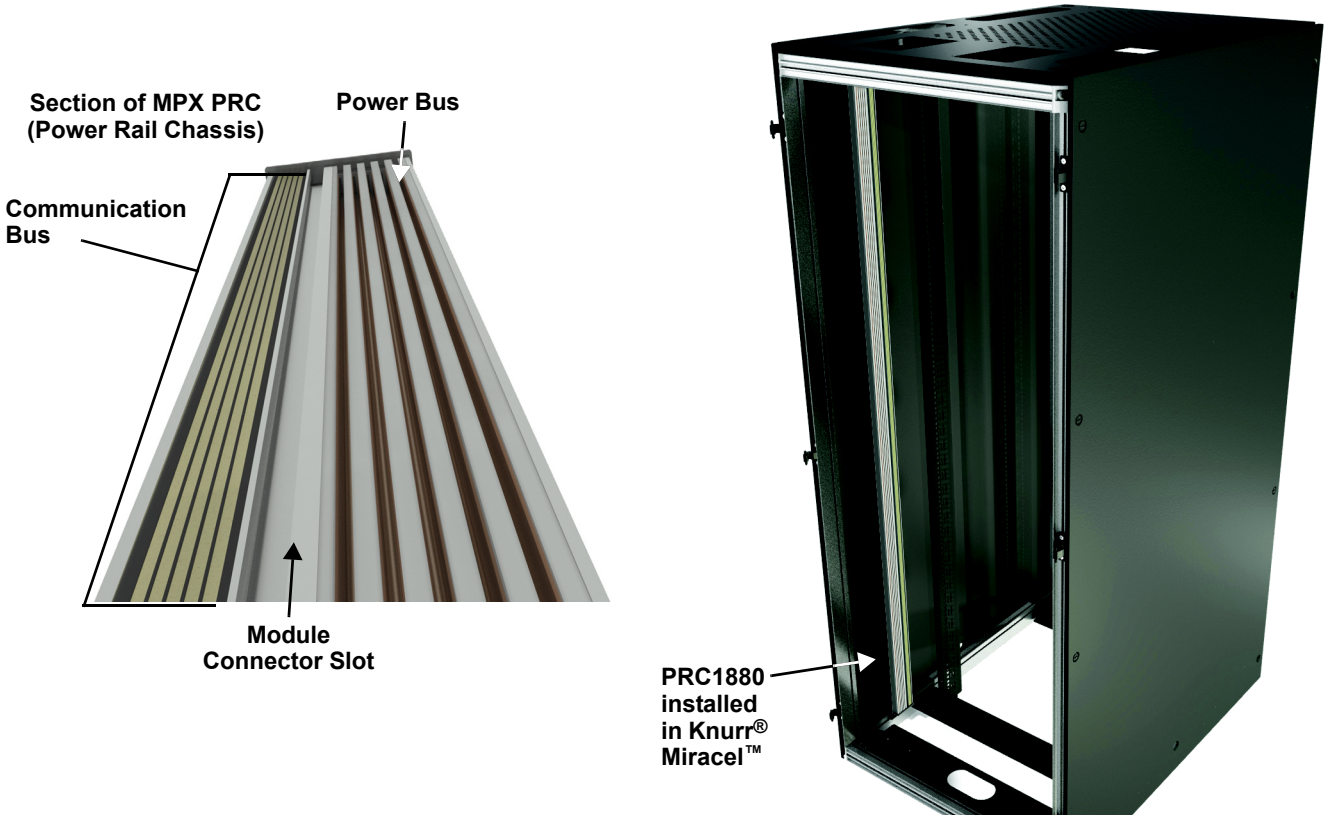
The MPX PRC has five power bus slots that allow the connection of the MPX PEM and MPX BRM modules to three phases of power, neutral and protective earth. A communication bus provides the path through which the Liebert RPC, MPX PEM and MPX BRM modules communicate. The MPX PRC also has a module connector slot that permits secure attachment of MPX PEM and MPX BRM modules via their integral connectors. Spacer covers are available to cap off unused sections of the MPX PRC's surface. The spacer covers reserve positions to insert MPX BRMs for future expansion.

WARNING

Risk of connecting two MPX PEMs to one MPX PRC. Can cause equipment damage, injury or death.

Connect only one MPX PEM (Power Entry Module) to an MPX PRC (Power Rail Chassis). Connecting more than one MPX PEM could cause cross-conduction. A cross-conduction can cause upstream overcurrent protective devices (OCPD) trip or the resulting short circuit current may exceed the OCPD A.I.C. ratings.

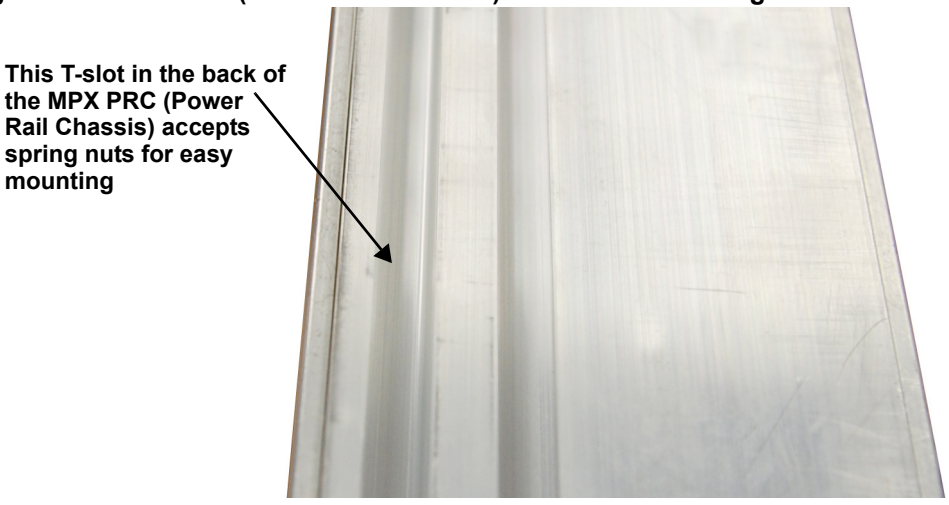
Figure 2 MPX PRC™ (Power Rail Chassis) components



2.1.1 Mounting Features

The back of the MPX PRC features T-slots running the length of the unit. These may be used for mounting the assembled units in racks, such as the Knurr® Miracel™ rack.

Figure 3 MPX PRC (Power Rail Chassis) T-slots for mounting



2.2 MPX™ PEM™—Power Entry Module/ Power Input

WARNING

Risk of arc flash and electric shock. Can cause equipment damage, injury or death.

The MPX PEM contains hazardous voltage. This unit must be properly and securely installed on the MPX PRC (Power Rail Chassis). The power conductors on the bottom of the MPX PEM are energized with hazardous voltage whenever the MPX PEM is attached to power. If the MPX PEM is not installed on the MPX PRC, these conductors will be exposed. Emerson strongly recommends that the MPX PEM be installed only by an individual who has been properly trained and qualified to perform electrical work.

WARNING

Risk of connecting two MPX PEMs to one MPX PRC. Can cause equipment damage, injury or death.

Connect only one MPX PEM (Power Entry Module) to an MPX PRC™ (Power Rail Chassis). Connecting more than one MPX PEM could cause cross-conduction. A cross-conduction can cause upstream overcurrent protective devices (OCPD) trip or the resulting short circuit current may exceed the OCPD A.I.C. ratings.

The MPX PEM centralizes the connectivity of Liebert's MPX's power input and communication ports. The MPX PEM securely fastens onto the MPX PRC (Power Rail Chassis) to deliver polyphase power from its power supply cord to the power bus. The Liebert RPC is installed in the MPX PEM for its operating power and connection to the communication bus.

The MPX PEM is available in North American models with Variable-Capacity or Fixed-Capacity and in European models with Fixed-Capacity only. Both configurations' power supply cords are available in a variety of single- and three-phase NEMA, Schuko and IEC plug styles and ratings.

The Variable-Capacity models require connection of a detachable MPX IPC (See **2.2.1 - MPX™ IPC™—Input Power Cord/Communication (North American Models Only)**) to its power inlet. The power input ratings are determined by the plug type. The user may change the MPX IPC™ with a different plug type and ratings from single phase to three-phase to suit his/her needs.

NOTE

Up to 30A (24A) per phase is supported for variable capacity North American models; up to 32A per phase is supported for European models.

NOTE

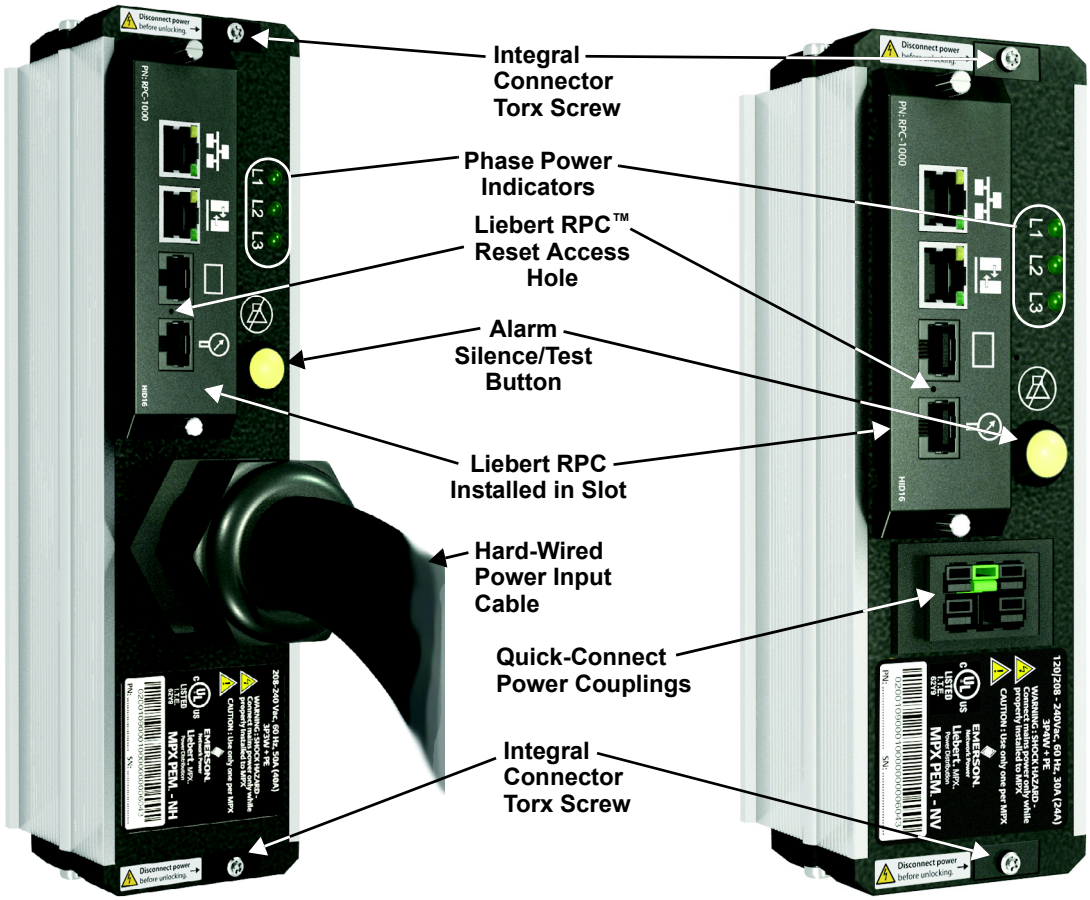
Up to 60A (48A) per phase is supported for fixed capacity North American models; up to 63A per phase is supported for European models.

All models, except Elementary versions, provide power metering of the polyphase inputs, including individual line voltage and current, total kW and total kWH. Additionally, individual line current alarming and operational status are supported. Elementary models of the MPX™ PEM™ are available only in Europe. Elementary models are not equipped with power metering capability.

Other important features include:

- Three visual phase power indicators alert the user to the current condition of each power input.
- Audible alarm is enabled during certain overcurrent conditions. The audible alarm may be tested or silenced by pressing the alarm silence/test button. The alarm may be tested by momentarily pressing the button when an alarm condition is not pending.

Figure 4 MPX PEM™ (Power Entry Module) features



2.2.1 MPX™ IPC™—Input Power Cord/Communication (North American Models Only)

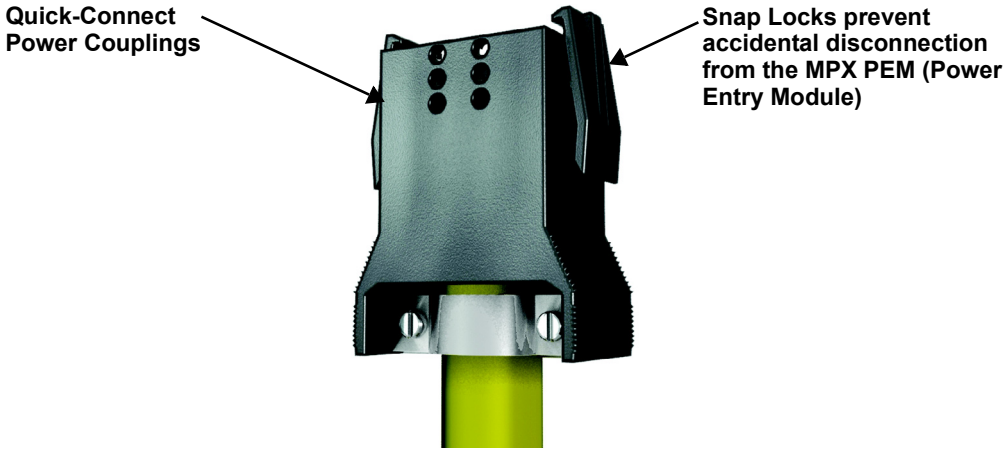
The MPX IPC is a detachable input power cord that permits changing the input power source for Variable-Capacity versions of the MPX PEM™. A variety of single- and three-phase NEMA and IEC plug types are available. The MPX IPC is not required for the Fixed-Capacity MPX PEM.

WARNING

Risk of arc flash and electric shock. Can cause equipment damage, injury or death.

Do not connect the MPX IPC to power until the MPX PEM is attached to the MPX PRC™ and the MPX IPC is attached to the MPX PEM. If the MPX PEM is not attached to the MPX PRC, conductors with hazardous voltage will be exposed when power is connected.

Figure 5 MPX IPC connector



2.3 MPX BRM™—Branch Receptacle Module (Power Output)

The MPX BRM provides output power distribution to user load equipment. All MPX BRMs include output receptacles (NEMA, Schuko or IEC) that are overload-protected by 100% rated hydraulic-magnetic circuit breakers.

MPX BRMs are hot-swappable to allow user installation without powering down the Liebert MPX. Up to three standard sized (266mm) MPX BRMs can be deployed on a Liebert MPX utilizing the MPX PRC (Power Rail Chassis) for typical 23U racks and up to six standard size MPX BRMs (Branch Receptacle Modules) for units utilizing the 1880mm MPX PRC™ for typical 42U racks. All MPX BRMs include an alphanumeric LED indicator that uniquely identifies the individual module.

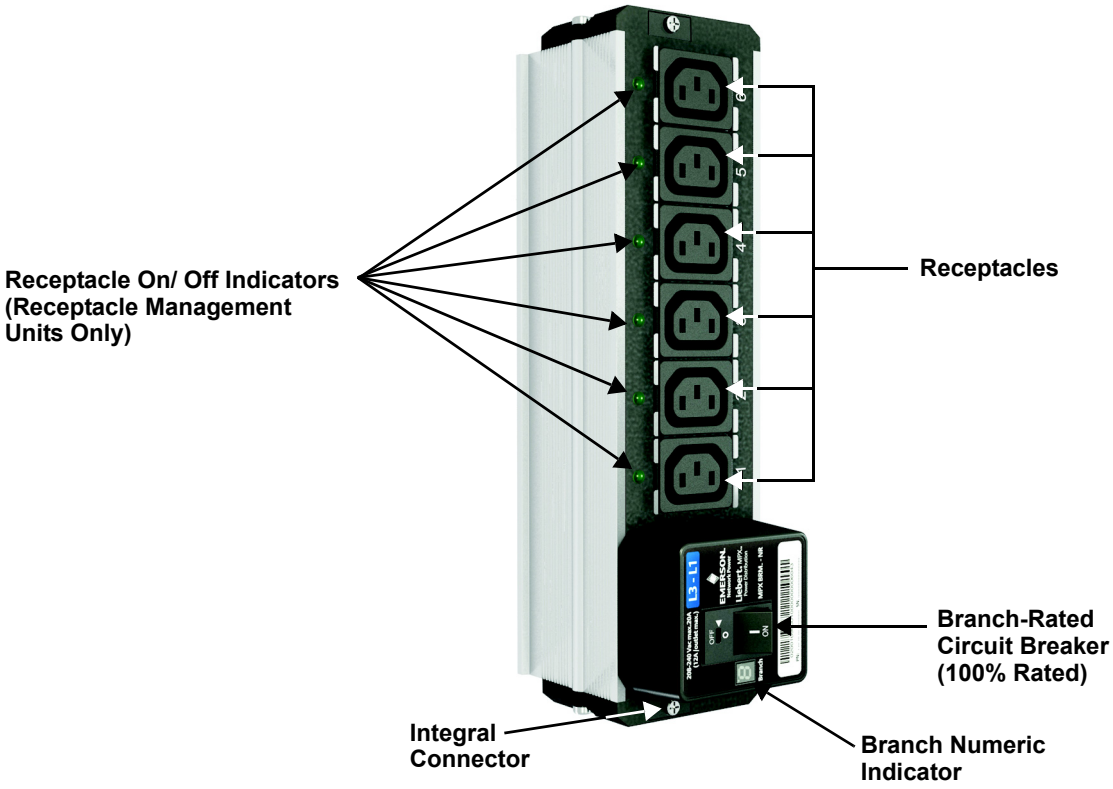
North American and European models of the MPX BRM are available in the following versions and features:

- Elementary version provides power distribution only. Power metering and alarming are not supported.
- Branch Monitoring version of the MPX BRM provides power distribution and branch power metering, including voltage, current, kW, kVA, kW-h and power factor.
- Receptacle Management version of the MPX BRM provides the same features as the Branch Monitoring models, plus power metering, including crest factor, On/Off control, current alarming, and operational status of individual receptacles. The receptacles may either be turned On or Off remotely or programmed for automatic power-on sequencing.

Other important features include:

- An alphanumeric indicator to provide module identification and operational status (not Elementary models) of the branch current condition. Additionally, the Branch Monitoring version provides current alarming and operational status of the branch. The unit displays an “o” for an overcurrent condition and a “u” for an undercurrent condition.
- For Receptacle Management versions, a visual indicator per receptacle alerts the user to the current condition of the load (not Elementary models).
- The circuit breaker may be opened with the use of a tool. Open circuit breaker detection causes the alphanumeric indicator to flash (not Elementary models).
- Voltage phasing is determined by the power blade configuration on the bottom of each MPX BRM™, and is clearly marked on the color coded label.
- IEC C13 receptacle types are provided with retaining clips to provide strain relief for the load's power supply cord.

Figure 6 MPX BRM™ (Branch Receptacle Module)

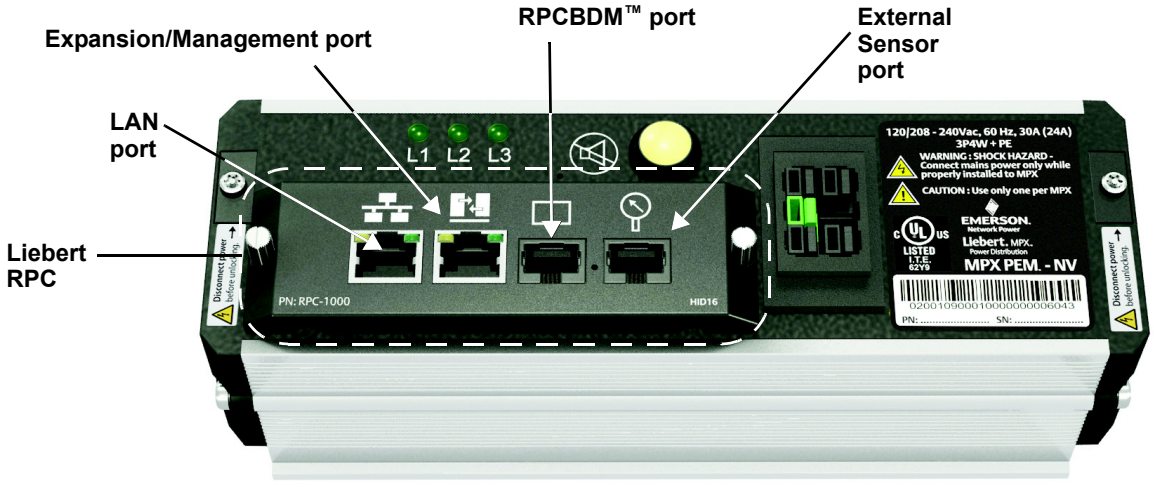


2.4 Liebert® RPC™—Rack PDU Card

The Liebert RPC centralizes local and remote management for the Liebert MPX™. It provides Web and SNMP management for systems connected to an Ethernet network. The Liebert RPC also serves as the connection point for multiple support capabilities and devices including the RPC Basic Display Module (RPCBDM™), various optional environmental sensors and "sibling" connection to other Liebert MPX™ or Liebert MPH™ systems. The Liebert RPC is equipped with RJ-45 jacks for all connections and requires no custom cables. The card supports 10 and 100 Mbit Ethernet and provides for in-the-field upgrade of firmware.

The Liebert RPC is user-installed in a slot in the MPX PEM™ (Power Entry Module). Europe only: The Liebert RPC is factory-installed in all monitored MPX PEMs.

Figure 7 Liebert® RPC™ (rack PDU card) in an MPX™ PEM™ (Power Entry Module)



2.4.1 RPCBDM™—RPC Basic Display Module

The optional RPCBDM provides local display of monitored data for all connected Liebert MPX™ and Liebert MPH™ systems. Display information is accessed via a navigation switch on the RPCBDM. The RPCBDM is cable-connected to the Liebert RPC allowing the user to locate the display to suit the local reading requirements. A 2-meter cable and general mounting provisions are provided. A single display can be used for up to four Liebert MPX or Liebert MPH Rack PDUs connected in a Rack PDU Array™. The display screen's orientation may be changed to either landscape (default) or portrait by pressing and holding the scan switch while attaching the cable.

Figure 8 RPCBDM

3.0 LIEBERT® MPX™ INSTALLATION AND ASSEMBLY

All configuration steps must be completed before attempting to startup equipment connected to the Liebert MPX.

3.1 Installation in a Knurr® Miracel Rack

Emerson recommends installing the MPX PRC™ (Power Rail Chassis) in the rack, then attaching the Liebert MPX modules to it.

Before beginning, consider how cables will be routed in the rack. Placing the MPX PEM™ (Power Entry Module) at the end of the MPX PRC™ that is nearest the entry point for its input power cable can ease cable routing and help separate control and power cables to reduce electromagnetic interference.

A Liebert MPX can be installed in a Knurr® Miracel™ rack on either the upright or horizontal frame member with the included hardware. The unit can be installed on the face of the frame member or on the side of the frame member.

Installation requires inserting two spring nuts into the Liebert MPX, screwing Liebert MPX mounting screws into the spring nuts and attaching two brackets to the Knurr Miracel frame members. The Liebert MPX hangs on the brackets and is supported by the Liebert MPX mounting screws.

WARNING

Risk of connecting two MPX PEMs to one MPX PRC. Can cause equipment damage, injury or death.

Connect only one MPX PEM™ (Power Entry Module) to an MPX PRC (Power Rail Chassis). Connecting more than one MPX PEM could cause cross-conduction. A cross-conduction can cause upstream overcurrent protective devices (OCPD) trip or the resulting short circuit current may exceed the OCPD A.I.C. ratings.

3.1.1 Mounting Hardware Included

- Z-shaped brackets: 2
- L-shaped bracket: 2
- Spring-nuts, M5: 6
- Screws, M5x10: 6
- Liebert MPX mounting screws, 2

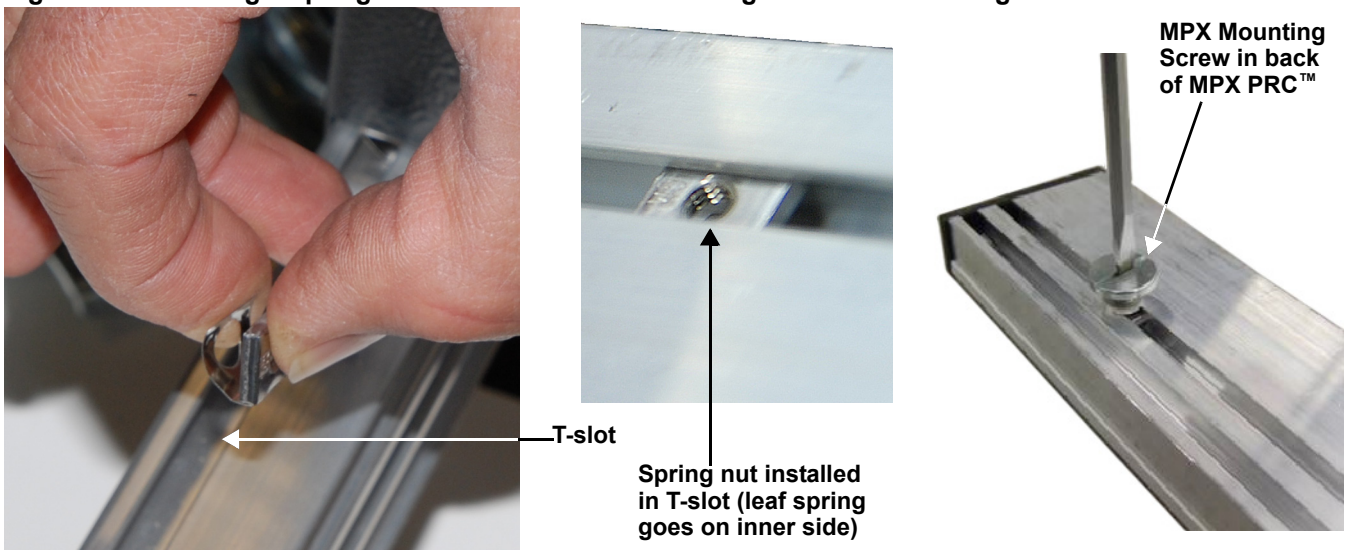
3.1.2 Tools Required—Field-Supplied

- Slotted screwdriver
- 4mm Allen wrench

3.1.3 Prepare the Liebert® MPX™ for Mounting

1. Insert two spring nuts into the T-slot on the back of the MPX PRC™, one near either end (see **Figure 9** for how to insert a spring nut).
2. Position the spring nuts where the brackets to be used will be positioned (either the Z-shaped or L-shaped brackets). To move a spring nut, press down on it with a small, pointed object and slide it into position.
3. Thread an MPX mounting screw into the spring nut and tighten a few turns. Leave enough space for the bracket to slip over the screw's head and rest on the body of the screw.

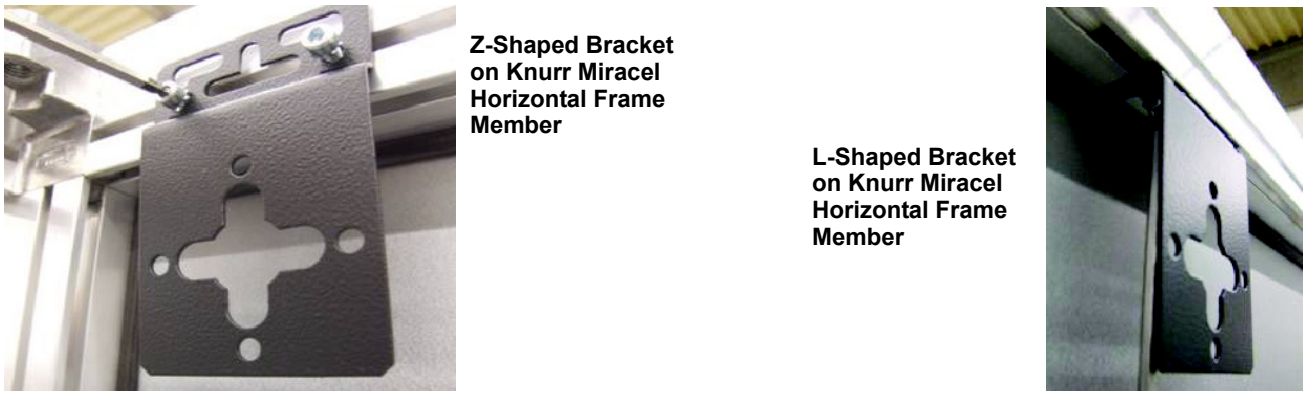
Figure 9 Inserting a spring nut into a T-slot and attaching an MPX™ mounting screw



3.1.4 Attach Brackets to a Knurr® Miracel™ Horizontal Frame Member

1. Insert two spring nuts into the T-slot on the upper horizontal frame member.
   a. To use the Z-shaped bracket, insert the spring nuts into the T-slot on the face of the horizontal frame member (see **Figure 10**).
   b. To use the L-shaped bracket, insert the spring nuts into the T-slot on the thinner side of the horizontal frame member (see **Figure 10**).
2. Position the spring nuts to accommodate screws inserted through slots in the brackets. To move the spring nuts, press down on each with a small, pointed object and slide each into position.
3. Hold the bracket in place and attach it with two of the M5x10 screws with hex heads.
4. Tighten the hex-head screws firmly with the Allen wrench.
5. Repeat **Steps 1** through **4** for the lower horizontal frame member. The brackets must be directly in line with each other for the Liebert® MPX to be installed.
6. After the brackets are attached, hang the Liebert MPX in the rack by inserting the Liebert MPX mounting screws into the slots on the brackets (see **Figure 12**).
7. Tighten the Liebert MPX mounting screws securely.

Figure 10 Attaching brackets to a horizontal frame member



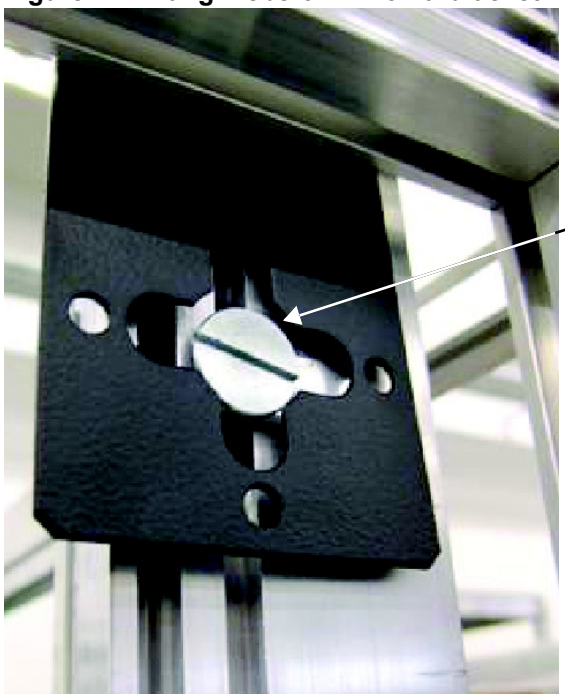
3.1.5 Attach L-Shaped Brackets to an Upright Frame Member of the Knurr® Miracel™

1. Insert two spring nuts into the T-slot on a rear upright frame member (see **Figure 11**).
2. Position the spring nuts to accommodate screws inserted through slots in the brackets. To move the spring nuts, press down on each with a small, pointed object and slide each into position.
3. Hold an L-shaped bracket in place and attach it with two of the M5x10 screws with hex heads.
4. Tighten the hex-head screws firmly with the Allen wrench.
5. Repeat **Steps 1** through **4** for the lower L-shaped bracket. The brackets will attach the Liebert® MPX™ more securely if one is near the top of the unit and one is near the bottom.
6. After the brackets are attached, hang the Liebert MPX in the rack by inserting the Liebert MPX mounting screws into the slots on the brackets (see **Figure 12**).
7. Tighten the Liebert MPX mounting screws securely.

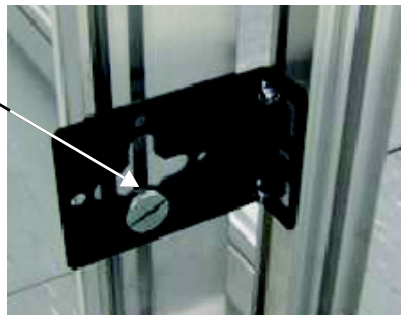
Figure 11 Attaching brackets to an upright frame member

L-Shaped Bracket
on Knurr Miracel Upright Frame Member

Figure 12 Hang Liebert MPX on a bracket



MPX mounting screw fits through the center of the bracket and slips into a slot



The lower screw on the back of the MPX PRC™ will sit in the bottom of the middle slot in either type of mounting bracket used

3.2 Liebert® MPX™ System Assembly

3.2.1 Attach an MPX PEM™ or MPX BRM™ to the MPX PRC™

WARNING

Risk of arc flash and electric shock. Can cause equipment damage, injury or death.

This unit must be properly and securely installed on the MPX PRC (Power Rail Chassis). Emerson strongly recommends that the MPX PEM be installed only by an individual who has been properly trained and qualified to perform electrical work.

Connect only one MPX PEM (Power Entry Module) to an MPX PRC (Power Rail Chassis). Connecting more than one MPX PEM could cause cross-conduction. Cross-conduction can cause upstream overcurrent protective devices (OCPD) trip or the resulting short circuit current may exceed the OCPD A.I.C. ratings.

Whenever the MPX PEM is connected to power, the connectors on the bottom are energized with hazardous voltage.

Connect input power only after:

- the MPX PEM (Power Entry Module) is properly installed on the MPX PRC (Power Rail Chassis)
- the MPX IPC™ (Input Power Cord) is properly connected to the MPX PEM

Connect input power to the Liebert MPX only while the MPX IPC is properly connected to the MPX PEM. Failure to do so may subject the user to hazardous voltages.

Tools Required

- Tamper-resistant No. 1 Torx screwdriver bit, included with MPX PEM
- No. 1 PoziDriv screwdriver bit, included with MPX PEM
- No. 1 Phillips screwdriver, field-supplied

Before beginning to assemble the Liebert MPX:

- Ensure that utility power is not connected to any module or component.
- Ensure that no equipment is connected to the MPX BRM (Branch Receptacle Module).
- Ensure that the circuit breaker on the MPX BRM is Off.

After the MPX PRC (Power Rail Chassis) has been installed in the rack, it is ready for attachment of an MPX PEM (Power Entry Module) and then the MPX BRMs (Branch Receptacle Modules).

Emerson strongly recommends attaching the MPX PEM first, positioning it at either end of the MPX PRC. The module's position will not adversely affect operation, but placing it at the end of the chassis will ease cable routing and separation of power and control cables in the rack.

Proper orientation of the MPX PRC is required to allow for the best use of the top or bottom entry into your rack. If cables will enter through the top of the rack, be sure that the MPX PRC has the power bus to the right side. This will put the MPX PEM in a position where the input cord will be closest to the top of the rack.

If cables will enter through the bottom of the rack, be sure that the MPX PRC is oriented so that the power bus is to the left side. This will put the MPX PEM in a position where the input cord will be closest to the bottom of the rack.

To balance the loads, be sure that the installed MPX BRMs have more than one unique line configuration (L1-L2, L2-L3, L3-L1, L1-N, L2-N, L3-N). This will help to ensure that none of the phases is overloaded.

If the MPX PEM is a Variable-Capacity model, an MPX IPC (input power cord) is required. Last, an optional Liebert RPC (rack PDU card) can be installed.

Disconnect Loads Before Adding or Removing an MPX™ BRM™

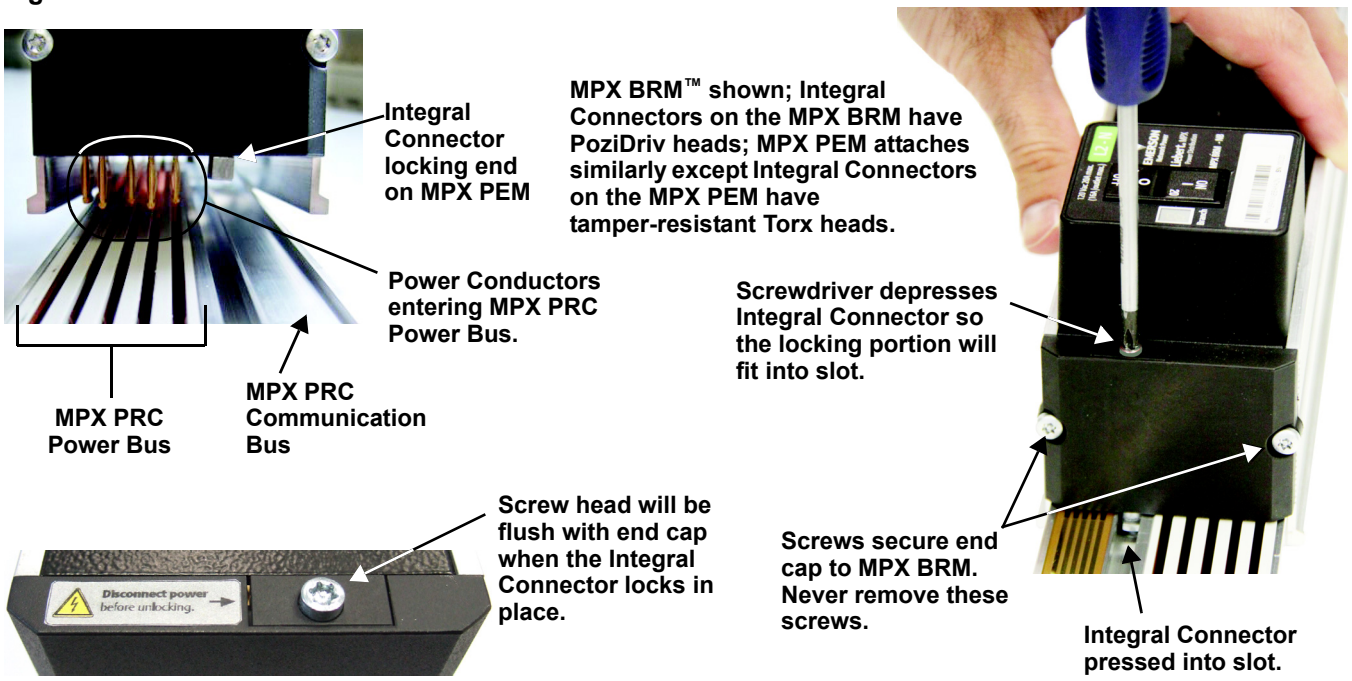
During normal operation, MPX BRMs (Branch Receptacle Modules) are hot-swappable. While adding or removing an MPX BRM, no user loads can be connected to the MPX BRM. Attempting to do so may damage the Liebert® MPX™ or connected equipment.

To attach either the MPX PEM™ or a MPX BRM:

1. Orient the module so that the power conducting tabs fit into the power bus on the MPX PRC™ and the communication contacts will fit into the MPX PRC's communication bus (see **Figure 13**).
2. Make sure that the integral connectors at each end of the module are oriented so they will fit into the slot on the MPX PRC (Power Rail Chassis).
3. Press the module firmly onto the MPX PRC.
4. Secure the module to the Power Rail Chassis with the Integral Connectors; there is one on each end.
   a. Use a screwdriver to press each connector down. The Integral Connectors on the MPX PEM have tamper-resistant Torx heads; Integral Connectors on the MPX BRM have PoziDriv heads, however, the same size Phillips head screwdriver can be used.
   b. Turn the screw until it locks and tightens, about three-quarters of a turn.

NOTE
Do not overtighten the connector on either end cap. Overtightening can damage the equipment.

Figure 13 Attach a module to the MPX PRC


Integral Connector locking end on MPX PEM
MPX BRM™ shown; Integral Connectors on the MPX BRM have PoziDriv heads; MPX PEM attaches similarly except Integral Connectors on the MPX PEM have tamper-resistant Torx heads.
Power Conductors entering MPX PRC Power Bus.
MPX PRC Power Bus
MPX PRC Communication Bus
Screwdriver depresses Integral Connector so the locking portion will fit into slot.
Screw head will be flush with end cap when the Integral Connector locks in place.
Disconnect power before unlocking.
Screws secure end cap to MPX BRM. Never remove these screws.
Integral Connector pressed into slot.

WARNING

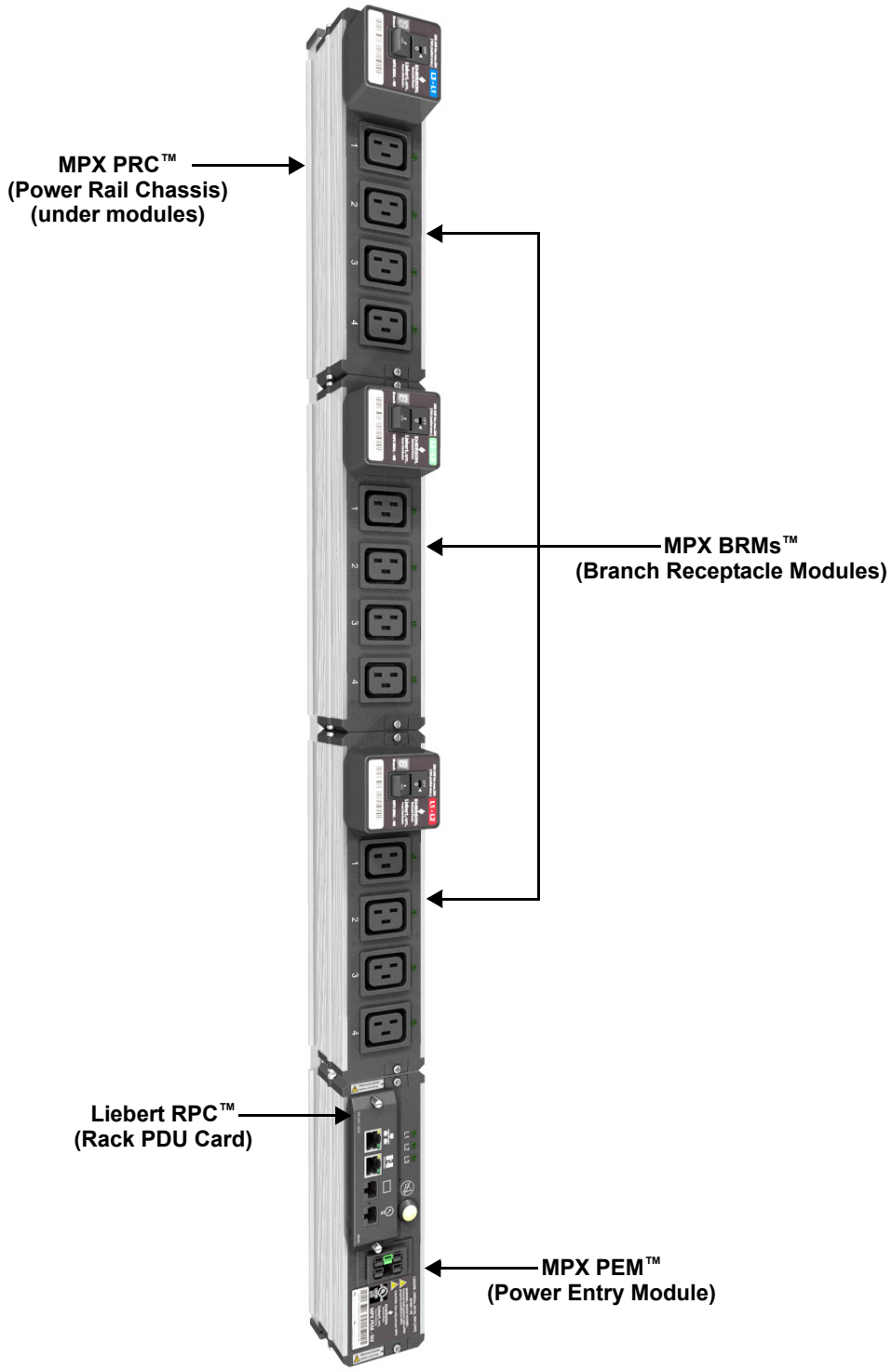
Risk of arc flash and electric shock. Can cause equipment damage, injury or death.

Do not remove the screws that affix the end cap. Removing the end cap will expose energized parts with hazardous voltage.

5. Repeat **Steps 1** through **4** for each additional module.

NOTE
The Liebert MPX will operate properly if spaces exist between modules, but adding modules will be hampered unless the space left is the size of a standard MPX BRM. Decorative covers are available to reserve the proper space on the MPX PRC and to protect any unused sections of the unit's surface.

Figure 14 Liebert® MPX™ assembled



3.2.2 Attach an MPX™ IPC™ to an MPX PEM™—Variable-Capacity MPX PEM Only (North American Models Only)

WARNING

Risk of arc flash and electric shock. Can cause equipment damage, injury or death.

The MPX PEM contains hazardous voltage that could cause serious injury or death. This unit must be properly and securely installed on the MPX PRC™ (Power Rail Chassis). Emerson strongly recommends that the MPX PEM be installed only by an individual who has been properly trained and qualified to perform electrical work.

Whenever the MPX PEM is connected to power, the connectors on the bottom are energized with hazardous voltage.

Connect input power only after:

- the MPX PEM (Power Entry Module) is properly installed on the MPX PRC (Power Rail Chassis)
- the MPX IPC™ (Input Power Cord) is properly connected to the MPX PEM

Connect input power to the Liebert MPX only while the MPX IPC is properly connected to the MPX PEM. Failure to do so may subject the user to hazardous voltages.

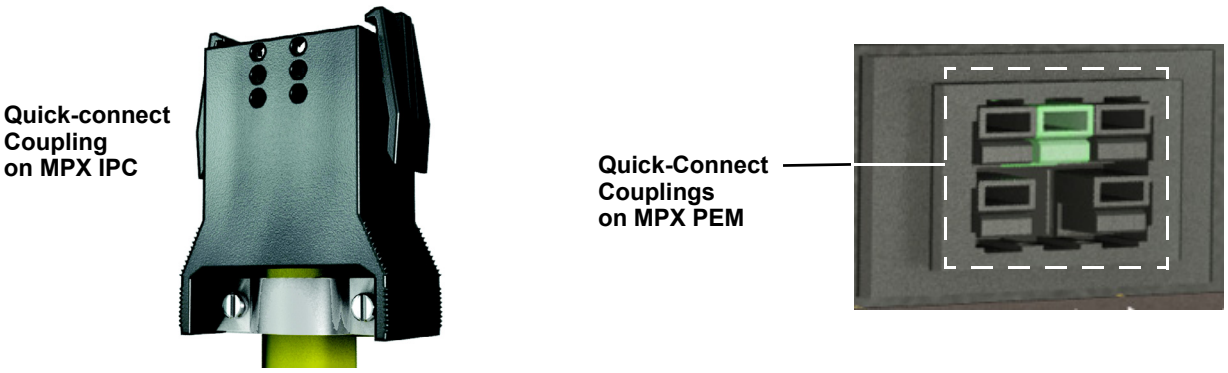
Variable-Capacity MPX PEM (Power Entry Module) versions require an MPX IPC (input power cord) to connect to utility power. The MPX IPC is available with various input plugs for single-phase or 3-phase and up to 30A.

Quick-connect couplings are attached to the MPX IPC to ease proper connection to the MPX PEM (Power Entry Module). The connectors fit only one way, mating the proper input, ground and neutral wires on the power cord to the MPX PEM.

To attach the MPX IPC to an MPX PEM:

1. Ensure that utility power is not connected to any module or component.
2. Ensure that the MPX IPC is not connected to utility power.
3. Insert the quick-connect coupling on the MPX IPC into the connector on the MPX PEM. It will lock into place. Tug on the cord to determine whether it is securely attached to the MPX PEM.

Figure 15 Quick-connect couplings on MPX IPC (input power cord) and MPX PEM (Power Entry Module)



3.2.3 Install an Optional Liebert RPC in the MPX PEM—North American Models Only

Installing a Liebert® RPC (rack PDU card) in the MPX PEM (Power Entry Module) permits monitoring a Liebert MPX either over a network or with an MPX BDM™ (basic display module). For complete details, refer to the Liebert RPC™ user manual, SL-20825, or quick-start guide, SL-20826, each available in the monitoring area of Liebert's Web site, **www.liebert.com**

1. Locate the communication card bay on the MPX PEM. You might need to remove a cover.
2. Insert the Liebert RPC into the MPX PEM and secure it with the provided screws.
3. The Liebert RPC has four ports designated by icons: a LAN port, Expansion/Management port, Display port, and Sensor port. Connect an Ethernet cable (not included) to the LAN port, identified by the icon on the right:
4. Connect the Ethernet cable to a computer.

LAN port icon

3.3 Temperature/Humidity Sensor Installation—Optional

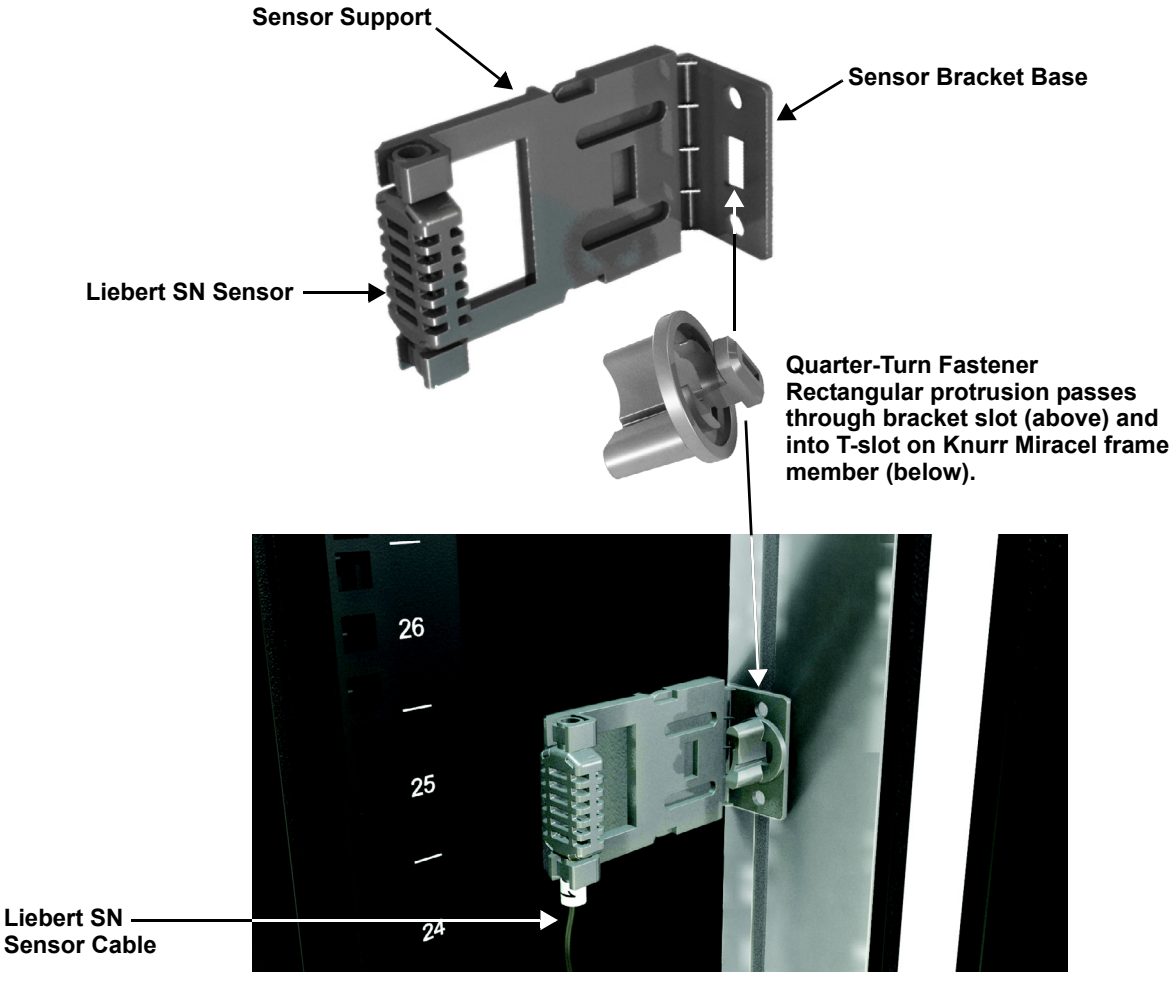
Optional Liebert® SN temperature/humidity sensors are available to assist in monitoring conditions in the rack. Liebert SN sensors are designed for installation in a Knurr® Miracel™ without tools, but each may be placed in any area to monitor temperature and humidity levels. Each connects to the Liebert RPC™, which makes readings available to Liebert MPX™ monitoring methods.

Only one mounting method is addressed in this manual: attaching a single sensor with a bracket to a Knurr Miracel frame member. For details on other mounting locations and methods, refer to the Liebert SN quick-start guide, SL-20840, or to the Liebert RPC user manual, SL-20825. Each is available at Liebert's Web site, **www.liebert.com**

To install a sensor on a Knurr® Miracel™ frame member:

1. Assemble the Liebert SN and sensor bracket:
   a. Insert the sensor bracket base into one end of the sensor support as shown in **Figure 16**.
   b. Snap the sensor into the other end of the sensor support.
2. Choose where in the rack to install the sensor assembly. Emerson recommends placing the sensor in the area that is likely to be warmest.
3. Hold the sensor bracket on a T-slot on the Knurr Miracel frame where the sensor will be placed.
4. Insert the included quarter-turn fastener through the rectangular hole in the sensor bracket base and into the T-slot (see **Figure 16**).
5. Turn the fastener clockwise 90 degrees, a quarter of a turn.
6. Route the sensor cable to the Liebert RPC and insert it into the card's external sensor port.
   For further details, refer to the Liebert RPC user manual, SL-20825, which shipped with the card and is available at Liebert's Web site: **www.liebert.com**

Figure 16 Temperature/humidity sensor mounting



3.4 Install an Optional RPCBDM™ in the Rack

The RPCBDM (Basic Display Module) can be mounted in the rack with either the included hardware or with a cable tie through the slot on the back of the module (see **Figure 17**). Either method permits moving the RPCBDM to a different place in the same rack or to another rack.

3.4.1 Mounting Hardware

- Spring nut M5: 1
- Spacer sleeve: 1
- Special MPX screw: 1
- Cable clip: 1

Tools Required

- Flat-blade screwdriver

3.4.2 RPCBDM Installation on Knurr® Miracel™ Frame

1. Determine the mounting location in the rack.
2. Insert a spring nut into a T-slot on the frame member where the RPCBDM will be installed (refer to **Figure 9**).
3. Insert the Liebert® MPX™ screw into the spacer sleeve.
4. Insert the Liebert MPX screw into the spring nut and tighten securely with the screwdriver.
5. Hang the RPCBDM on the Liebert MPX screw with the hooded mounting slot on the back of the RPCBDM (see **Figure 17**).
6. Connect the RPCBDM to the Liebert RPC™ with an Ethernet cable.
   Be certain to connect the cable to the correct port on the Liebert RPC (see **Figure 18**).

Figure 17 RPCBDM installation in rack

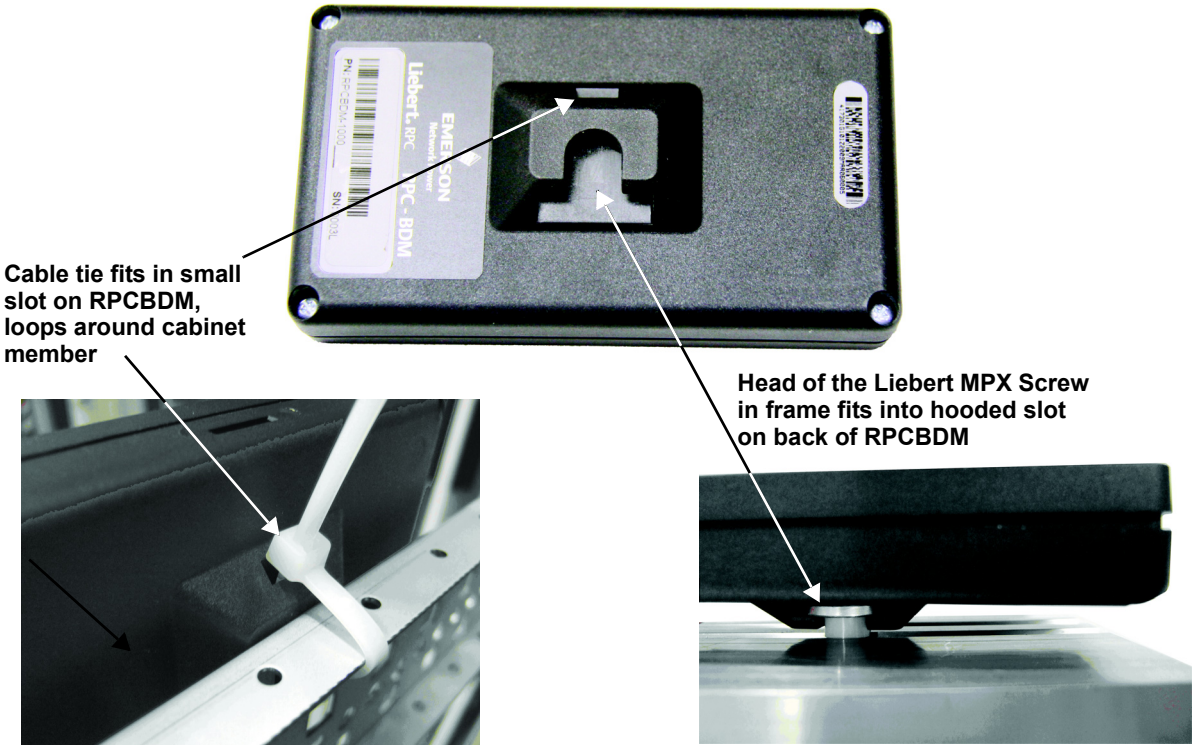
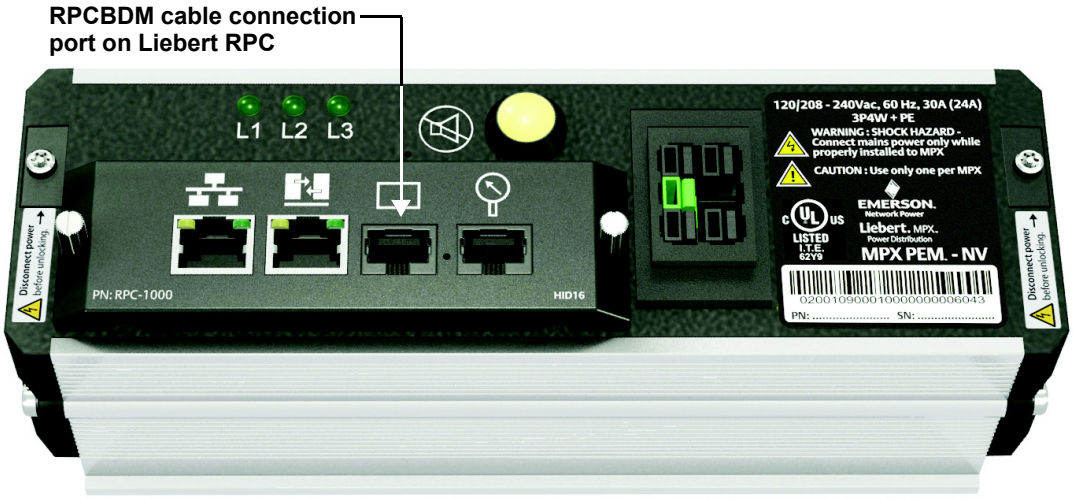

Cable tie fits in small slot on RPCBDM, loops around cabinet member
Head of the Liebert MPX Screw in frame fits into hooded slot on back of RPCBDM

Figure 18 RPCBDM™ cable connection port on Liebert® RPC™



4.0 SYSTEM FUNCTIONAL TEST

4.1 Checklist for Liebert® MPX™ Assembly

Follow these guidelines steps to verify that all components are properly assembled. Failure to follow these steps and in the documented sequence could result in a serious injury or equipment damage.

___ 1. MPX PRC™ (Power Rail Chassis) is securely attached to the rack.

___ 2. MPX PEM™ (Power Entry Module) is attached to the MPX PRC.
Ensure that the MPX PEM is securely locked onto the MPX PRC.

___ 3. Power input cable is attached to the MPX PEM, if applicable.
Variable-Capacity models have detachable cables with quick-connect couplings; Fixed-Capacity models have integral cables.

___ 4. Optional Liebert RPC™ (Rack PDU Card) is installed in the MPX PEM.

___ 5. MPX BRM™ (Branch Receptacle Modules) are installed; the number of modules that may be attached varies according to the length of the Power Rail Chassis.

___ 6. Maximum electrical load is within values shown on the Liebert MPX module rating labels.

___ 7. The input power supply ratings and connections match the specifications of the unit being installed.

4.2 Test the Liebert MPX's Functionality

Perform these steps to determine whether the Liebert MPX is ready for use. Failure to follow these steps in the documented sequence could result in serious injury or equipment damage.

1. Ensure that all circuit breakers on the MPX BRMs are Off.
2. Connect the Liebert MPX unit to input power.
   - Validate that only one MPX PEM (Power Entry Module) is installed on the MPX PRC (Power Rail Chassis).
   - Verify that the MPX PEM (Power Entry Module) and MPX BRM™ (Branch Receptacle Module[s]) operating voltages are the same and match the input power source.
3. Connect equipment to the MPX BRMs.
4. Make sure the equipment to be connected to the Liebert MPX is switched Off.
5. Attach communication cables to the Liebert RPC, if one is installed in the Liebert MPX.
6. Switch On the circuit breaker of each MPX BRM where the load is connected.
7. Check the Phase Power Indicators on the MPX PEM to verify that input power is present (not available on Elementary MPX PEM models). The appropriate number of lights on the MPX PEM should be green and lit but not flashing:
   - input power is single-phase—L1 should be green
   - input power is single-phase 208-240VAC (North America only)—L1 and L2 should be green
   - input power is three-phase—L1, L2 and L3 should be green.
8. Verify that each attached MPX BRM is displaying a non-repeated identifying number in the Number Indicator beside the circuit beaker (the identifying numbers' order in the display may not match the mapping of their physical location on the MPX PRC) (not available on Elementary MPX BRM models).
9. Switch On the test equipment or connected load to verify proper operation.
10. If any MPX BRMs are Receptacle Management versions, the lights beside the receptacles should be lit.

5.0 OPERATION AND CONFIGURATION

A Liebert® MPX™ can be operated with or without the optional Liebert RPC™ (Rack PDU Card). The card employs a Web-based interface to enhance monitoring and control, enabling users to manage rack equipment locally or from a remote location. The Liebert RPC can be used to determine power usage, switch receptacles on some units On and Off and troubleshoot input power supply problems.

The Liebert RPC will manage and monitor different types of MPX BRMs (Branch Receptacle Modules) installed on the same Liebert MPX. The feature can be valuable when some rack equipment connected to the Liebert MPX requires closer monitoring than other equipment.

The Liebert RPC supports managing and monitoring the Liebert MPX with SNMP, Liebert Nform™, Liebert SiteScan® and third-party management systems.

When connecting the rack equipment to the Liebert MPX's receptacles, arrange cables and connections to avoid tangling and crisscrossing the power cables. For power management purposes, record the receptacle where each piece of equipment is connected. Receptacles on the Liebert MPX have a numerical designation. A Liebert MPX with more than one circuit has the outlets named with numbers and are grouped by branch with a number referring to the proper circuit breaker.

5.1 Configure the Liebert RPC

The Liebert RPC is factory-configured for DHCP. If you require a Static or BootP network configuration, be sure to change the Boot Mode, as described below:

Expansion/ Management port icon

1. Insert an additional Ethernet cable (not included) into the Liebert RPC's Expansion/Management port, identified by the icon on the right:

NOTE
The Liebert RPC's Expansion/Management port should be used ONLY for local configuration through interconnection to a computer or for interconnecting an additional Liebert MPX or Liebert MPH™.

2. Insert the other end of the Ethernet cable into a computer.
3. Configure the computer's IP settings to communicate on a 192.168.1.X network:

IP address	192.168.1.9
Subnet mask	255.255.255.252
Default gateway	192.168.1.1

4. To connect to the card, open a Web browser and enter **http://192.168.1.10** into the URL field, then press Enter.
5. Once the Rack PDU Web page is displayed, click the **Configure** tab, then click **Network Settings** in the left pane.
6. When prompted for a user name and password, enter **Liebert** (case sensitive) for both.

NOTE
Control and configuration capabilities are protected by a username and password combination. After entering Liebert *for both the startup default username and password, change it in both places for better security.*

7. Click **OK**.
8. Click **Edit** in the right pane.
9. The default Speed/Duplex for the Ethernet port is **Auto** (automatic). To change this, choose from the Speed/Duplex drop-down list.
10. Choose the Boot Mode: **DHCP**, **Static** or **BootP**. (The default is **DHCP**.)
11. Click **Save** to save any changes (or Reset to cancel). A Notice window displays a reminder to reinitialize the card.
12. Click **OK**.
13. Make other changes as needed in the **Configuration** tab.
14. To complete the configuration, click **Reinitialize** in the left pane. A **Reinitialize** button appears in the right side of the window.
15. Click **Reinitialize** in the right pane to commit the changes and reboot the card. The card is now fully operational.

5.1.1 Indicators

NOTE

Do not continue to use the Liebert® MPX ™if the LED panel or monitoring interface indicators are not in accordance with these operating instructions. Refer all faults to your local dealer, Emerson representative or Emerson Distributed Processing Applications Engineering.

One or more Phase Power Indicators on the MPX PEM™ (Power Entry Module) should be green and lit but not flashing to indicate that input power is present and within tolerance. If input power is 3-phase, all three Phase Power Indicators should be lit green; and if input power is single-phase, one Phase Power Indicator should be lit green

Each MPX BRM™ should display a non-repeated identifying number in the LED beside the circuit beaker.

If any MPX BRMs are receptacle management versions, the LEDs beside the receptacles should be lit.

5.2 Operation With the Liebert RPC™

Instructions for operating a Liebert MPX equipped with a Liebert RPC (Rack PDU Card) are more fully detailed in the card's user manual, SL-20825, available at the Liebert Web site: **www.liebert.com**

5.2.1 Connect to the Liebert RPC

After the Liebert RPC (Rack PDU Card) is installed and configured, the card is ready to be used to monitor and manage the Liebert MPX as described below. If the card is not installed and configured, refer to **3.2.3 - Install an Optional Liebert RPC in the MPX PEM—North American Models Only** and **5.1 - Configure the Liebert RPC**.

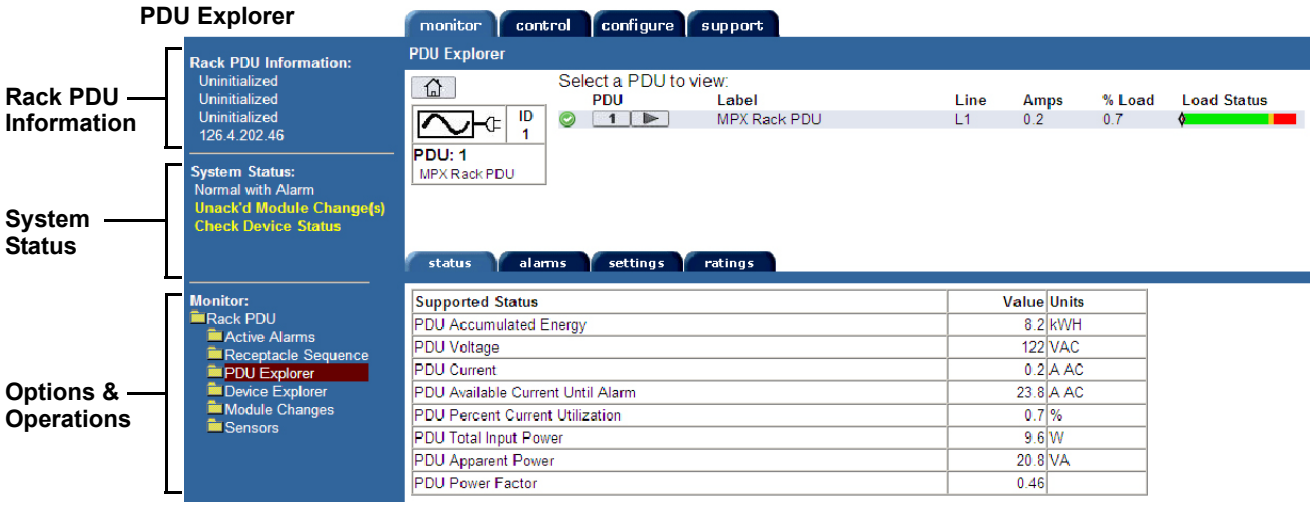
1. Open a Web browser (Liebert recommends using Microsoft's Internet Explorer®) and enter **http://192.168.1.10** into the URL field, then press Enter to display the Liebert MPX's Web page.
2. When prompted for a user name and password, enter **Liebert** (case sensitive) for both.

   Control and configuration capabilities are protected by a username and password combination. After entering **Liebert** for both the startup default username and password, change both for security purposes (refer to the user manual, SL-20825).
3. Access information about the Liebert MPX or configure the Liebert MPX by clicking on the appropriate tabs and viewing choices (refer to the views in **Figure 20**).

5.2.2 Viewing PDU and Receptacle Status: PDU Explorer and Device Explorer

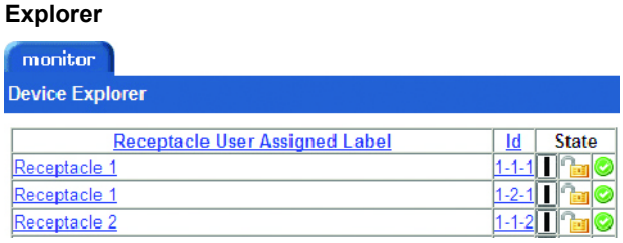
The PDU Explorer permits browsing components from the highest level of the Liebert® MPX™ to the receptacle level. The PDU Explorer is Web-based software that displays a hierarchical view of the system. Using PDU Explorer, the user is able to browse components starting at the PDU level, through to the branches of the PDU, and down to the receptacles of those branches.

Figure 19 Liebert® RPC™ PDU Explorer view



The Device Explorer shows the status and identification of all receptacles on a single PDU. This list can be sorted by the supplied fields, allowing quick navigation. Associated links navigate to the PDU Explorer for viewing or configuring a receptacle

Figure 20 Liebert RPC Device Explorer view



5.3 Operation Without the Liebert RPC

The Liebert MPX can be operated without the optional Liebert RPC (rack PDU card), but it will have reduced functionality.

After the unit is installed and assembled, connect rack equipment to the receptacles, connect input power and by switch on the circuit breaker on each MPX BRM™ (Branch Receptacle Module). Start the rack equipment according to the manufacturer's instructions.

6.0 MAINTENANCE

The Liebert® MPX™ needs little or no maintenance.

Emerson® recommends setting up a maintenance schedule that includes:

- Dust the unit's exterior with a clean, dry cloth.
- Check all fittings and connections to ensure they are tight.
- If any fuses need replacing, they must be replaced with the same type.

6.1 Maintenance Support

The Liebert MPX contains no user-serviceable parts. If you need support or have questions about your Liebert MPX, contact Emerson Network Power Distributed Processing Applications or your local Emerson representative. Do not attempt to service this product yourself.

7.0 SPECIFICATIONS

7.1 MPX™ PRC™—Model Number Configuration

- Prefix: MPXPRC-
- Mounting: V = Vertical
- Length: 1035 = Short (40-3/4"; 1035mm); 1880 = Standard (74"; 1880mm)

Table 1 MPX PRC (Power Rail Chassis) specifications

Model #	Length, mm (U.)	Maximum Modules		Ratings		
		BRM (266mm)	PEM	Ampere, A	Voltage, V	Weight, lb. (kg)
MPXPRC-V1880xxx	1880 (42)	6 (266mm)	1 (220mm)	63	240/415	4.76 (2.16)
MPXPRC-V1035xxx	1035 (23)	3 (266mm)	1 (266mm)			2.62 (0.84)

7.2 MPX™ PEM™—Model Number Configuration

- **Prefix**: MPXPEM-
- **Region**: N=North America; E=European
- **Type**: V = Variable-Capacity; H = Fixed-Capacity
- **Size**: A = Small (220mm); B = Standard (266mm)
- **Communication**: A=RPC Installed; X=RPC Not Installed; E=Not Available
- **Input Power**:
  - **Variable-Capacity PEM**
    Plug Style: X=Standard (APP)
    Service: A=NA 30A120/208V and EU 32A 230/400V; B=NA 30A 240/415V
    Remaining Positions Use X
  - **Fixed-Capacity**
    Plug Style: X=Standard (Straight); S=Special; R=Right Angle
    Service *(if Plug=X|R)*: F=L6-30P; H=L21-30P; I=L22-30P; M=L7-30P; Q= EU IEC309 32A 230V 1P2W+PE; R=EU IEC309 32A 230/400V 3P4W+PE; S=EU IEC309 16A 230V 1P2W+PE; T=EU IEC309 16A 230/400V 3P4W+PE; V=NA CS8365C 50A 3P3W+PE,208-240V; W=NA IEC309 60A 120/208-240V 3P4W+PE; X=NA IEC309 60A 208-240V 3P3W+PE; Y=NA IEC309 60A 240/415V 3P4W+PE; Z=EU IEC309 63A 230/400V 3P4W+PE
- **Cord Length** (*nominal; if Plug=X|R*): Reflect meters with two digits (e.g., 30 = 3.0m)
  If Plug=S, the Service and Cord fields are combined as a numerical value only, e.g., 001

Table 2 MPX PEM (Power Entry Module) specifications

Model #	Capacity	Input Ratings		Service Phase	Length, mm	Strain Relief S=Straight R=Right Angle	Weight lb. (kg)
		Ampere	Voltage				
North American Applications							
MPXPEM-NVAXXAXX	Variable	30 (24)	120/208-240	1-3	220	S	2.3 (1.03)
MPXPEM-NHBXRF30	Fixed	30 (24)	208-240	1	266	R	2.3 (1.03)
MPXPEM-NHBXXI30	Fixed	30 (24)	240/415	3	266	S	2.3 (1.03)
MPXPEM-NHBXXH30	Fixed	30 (24)	120/208-240	3	266	S	2.3 (1.03)
MPXPEM-NHBXRH30	Fixed	30(24)	120/208-240	3	266	R	2.3 (1.03)
MPXPEM-NHBXXM30	Fixed	30 (24)	240	1	266	S	2.3 (1.03)
MPXPEM-NHBXXW30	Fixed	60 (48)	120/208-240	3	266	S	2.3 (1.03)
MPXPEM-NHBXRW30	Fixed	60 (48)	120/208-240	3	266	R	2.3 (1.03)
MPXPEM-NHBXXX30	Fixed	60 (48)	208-240	3	266	S	2.3 (1.03)
MPXPEM-NHBXRX30	Fixed	60 (48)	208-240	3	266	R	2.3 (1.03)
MPXPEM-NHBXXV30	Fixed	50 (40)	208-240	3	266	S	2.3 (1.03)
MPXPEM-NHBXRV30	Fixed	50 (40)	208-240	3	266	R	2.3 (1.03)
European Applications							
MPXPEM-EHAAXQ30	Fixed	32	230	1	220	S	2.3 (1.03)
MPXPEM-EHAEXQ30	Fixed	32	230	1	220	S	2.3 (1.03)
MPXPEM-EHAAXR30	Fixed	32	230/400	3	220	S	2.3 (1.03)
MPXPEM-EHAEXR30	Fixed	32	230/400	3	220	S	2.3 (1.03)
MPXPEM-EHAAXS30	Fixed	16	230	1	220	S	2.3 (1.03)
MPXPEM-EHAEXS30	Fixed	16	230	1	220	S	2.3 (1.03)
MPXPEM-EHAAXT30	Fixed	16	230/400	3	220	S	2.3 (1.03)
MPXPEM-EHAEXT30	Fixed	16	230/400	3	220	S	2.3 (1.03)
MPXPEM-EHBAXZ30	Fixed	63	230/400	3	266	S	2.3 (1.03)
MPXPEM-EHBEXZ30	Fixed	63	230/400	3	266	S	2.3 (1.03)

7.3 MPX™ BRM™—Model Number Configuration

- **Prefix**: MPXBRM-
- **Region**: N=North America; E=European
- **Type**: B=Branch Monitoring; R=Receptacle Management; E=Elementary (No Monitoring)
- **Size and OL Protection**:
  - A=Small (220mm), B=Standard (266mm), C=Standard w/ Tamper-Proof Screws
- **Output Power**:
  - Voltage/CB Rating: A=120V,20A; B=208V,20A; C=230V,20A; D=208-240V,20A; E=100V,20A; F=240V,20A
  - Number of Receptacles: 2 to 7
  - Receptacle Type: A=5-20R; F to L=Reserved; N=IEC-C13 Sheet F; O=IEC-C19 Sheet J; P=CEE-7 Type F (Schuko); U=GST18
  - Phase Configuration: 1N=L1-N; 2N=L2-N; 3N=L3-N; 12=L1-L2; 23=L2-L3; 31=L3-L1

Table 3 MPX BRM (Branch Receptacle Module) specifications

Model #	Type	No. of Outlets	Receptacle Ratings		OCB, A	Voltage Configuration	Length, mm	Region	Weight lb. (kg)
			Ampere, A	Voltage, V					
RECEPTACLE MANAGEMENT MODULES									
North American Applications									
MPXBRM-NRBA6A1N	NEMA 5-20R	6	16	120	20	L1-N	266	NA	2.3 (1.03)
MPXBRM-NRBA6A2N	NEMA 5-20R	6	16	120	20	L2-N	266	NA	2.3 (1.03)
MPXBRM-NRBA6A3N	NEMA 5-20R	6	16	120	20	L3-N	266	NA	2.3 (1.03)
MPXBRM-NRBD4O12	IEC C19 Sheet J	4	16	208-240	20	L1-2	266	NA	2.3 (1.03)
MPXBRM-NRBD4O23	IEC C19 Sheet J	4	16	208-240	20	L2-3	266	NA	2.3 (1.03)
MPXBRM-NRBD4O31	IEC C19 Sheet J	4	16	208-240	20	L3-1	266	NA	2.3 (1.03)
MPXBRM-NRBD6N12	IEC C13 Sheet F	6	12	208-240	20	L1-2	266	NA	2.3 (1.03)
MPXBRM-NRBD6N23	IEC C13 Sheet F	6	12	208-240	20	L2-3	266	NA	2.3 (1.03)
MPXBRM-NRBD6N31	IEC C13 Sheet F	6	12	208-240	20	L3-1	266	NA	2.3 (1.03)
MPXBRM-NRBF4O12	IEC C19 Sheet J	4	16	240	20	L1-N	266	NA	2.3 (1.03)
MPXBRM-NRBF4O23	IEC C19 Sheet J	4	16	240	20	L2-N	266	NA	2.3 (1.03)
MPXBRM-NRBF4O31	IEC C19 Sheet J	4	16	240	20	L3-N	266	NA	2.3 (1.03)
MPXBRM-NRBF6N12	IEC C13 Sheet F	6	12	240	20	L1-N	266	NA	2.3 (1.03)
MPXBRM-NRBF6N23	IEC C13 Sheet F	6	12	240	20	L2-N	266	NA	2.3 (1.03)
MPXBRM-NRBF6N31	IEC C13 Sheet F	6	12	240	20	L3-N	266	NA	2.3 (1.03)
RECEPTACLE MANAGEMENT MODULES									
European Applications									
MPXBRM-ERBC3P1N	Schuko CEE 7/4	3	16	230	20	L1-N	266	EU	2.3 (1.03)
MPXBRM-ERBC3P2N	Schuko CEE 7/4	3	16	230	20	L2-N	266	EU	2.3 (1.03)
MPXBRM-ERBC3P3N	Schuko CEE 7/4	3	16	230	20	L3-N	266	EU	2.3 (1.03)
MPXBRM-ERBC4O1N	IEC C19 Sheet J	4	16	230	20	L1-N	266	EU	2.3 (1.03)
MPXBRM-ERBC4O2N	IEC C19 Sheet J	4	16	230	20	L2-N	266	EU	2.3 (1.03)
MPXBRM-ERBC4O3N	IEC C19 Sheet J	4	16	230	20	L3-N	266	EU	2.3 (1.03)
MPXBRM-ERBC6N1N	IEC C13 Sheet F	6	10	230	20	L1-N	266	EU	2.3 (1.03)
MPXBRM-ERBC6N2N	IEC C13 Sheet F	6	10	230	20	L2-N	266	EU	2.3 (1.03)
MPXBRM-ERBC6N3N	IEC C13 Sheet F	6	10	230	20	L3-N	266	EU	2.3 (1.03)

Table 3 MPX BRM (Branch Receptacle Module) specifications (continued)

Model #	Type	No. of Outlets	Receptacle Ratings		OCB, A	Voltage Configuration	Length, mm	Region	Weight lb. (kg)
			Ampere, A	Voltage, V					
BRANCH MONITORING MODULES									
North American Applications									
MPXBRM-NBBA6A1N	NEMA 5-20R	6	16	120	20	L1-N	266	NA	2.3 (1.03)
MPXBRM-NBBA6A2N	NEMA 5-20R	6	16	120	20	L2-N	266	NA	2.3 (1.03)
MPXBRM-NBBA6A3N	NEMA 5-20R	6	16	120	20	L3-N	266	NA	2.3 (1.03)
MPXBRM-NBBD4O12	IEC C19 Sheet J	4	16	208-240	20	L1-2	266	NA	2.3 (1.03)
MPXBRM-NBBD4O23	IEC C19 Sheet J	4	16	208-240	20	L2-3	266	NA	2.3 (1.03)
MPXBRM-NBBD4O31	IEC C19 Sheet J	4	16	208-240	20	L3-1	266	NA	2.3 (1.03)
MPXBRM-NBBD6N12	IEC C13 Sheet F	6	12	208-240	20	L1-2	266	NA	2.3 (1.03)
MPXBRM-NBBD6N23	IEC C13 Sheet F	6	12	208-240	20	L2-3	266	NA	2.3 (1.03)
MPXBRM-NBBD6N31	IEC C13 Sheet F	6	12	208-240	20	L3-1	266	NA	2.3 (1.03)
MPXBRM-NBBF4O12	IEC C19 Sheet J	4	16	240	20	L1-N	266	NA	2.3 (1.03)
MPXBRM-NBBF4O23	IEC C19 Sheet J	4	16	240	20	L2-N	266	NA	2.3 (1.03)
MPXBRM-NBBF4O31	IEC C19 Sheet J	4	16	240	20	L3-N	266	NA	2.3 (1.03)
MPXBRM-NBBF6N12	IEC C13 Sheet F	6	12	240	20	L1-N	266	NA	2.3 (1.03)
MPXBRM-NBBF6N23	IEC C13 Sheet F	6	12	240	20	L2-N	266	NA	2.3 (1.03)
MPXBRM-NBBF6N31	IEC C13 Sheet F	6	12	240	20	L3-N	266	NA	2.3 (1.03)
BRANCH MONITORING MODULES									
European Applications									
MPXBRM-EBBC3P1N	Schuko CEE 7/4	3	16	230	20	L1-N	266	EU	2.3 (1.03)
MPXBRM-EBBC3P2N	Schuko CEE 7/4	3	16	230	20	L2-N	266	EU	2.3 (1.03)
MPXBRM-EBBC3P3N	Schuko CEE 7/4	3	16	230	20	L3-N	266	EU	2.3 (1.03)
MPXBRM-EBBC4O1N	IEC C19 Sheet J	4	16	230	20	L1-N	266	EU	2.3 (1.03)
MPXBRM-EBBC4O2N	IEC C19 Sheet J	4	16	230	20	L2-N	266	EU	2.3 (1.03)
MPXBRM-EBBC4O3N	IEC C19 Sheet J	4	16	230	20	L3-N	266	EU	2.3 (1.03)
MPXBRM-EBBC6N1N	IEC C13 Sheet F	6	10	230	20	L1-N	266	EU	2.3 (1.03)
MPXBRM-EBBC6N2N	IEC C13 Sheet F	6	10	230	20	L2-N	266	EU	2.3 (1.03)
MPXBRM-EBBC6N3N	IEC C13 Sheet F	6	10	230	20	L3-N	266	EU	2.3 (1.03)
ELEMENTARY MODULES									
North American Applications									
MPXBRM-NEBA6A1N	NEMA 5-20R	6	16	120	20	L1-N	266	NA	2.3 (1.03)
MPXBRM-NEBA6A2N	NEMA 5-20R	6	16	120	20	L2-N	266	NA	2.3 (1.03)
MPXBRM-NEBA6A3N	NEMA 5-20R	6	16	120	20	L3-N	266	NA	2.3 (1.03)
MPXBRM-NEBD4O12	IEC C19 Sheet J	4	16	208-240	20	L1-2	266	NA	2.3 (1.03)
MPXBRM-NEBD4O23	IEC C19 Sheet J	4	16	208-240	20	L2-3	266	NA	2.3 (1.03)
MPXBRM-NEBD4O31	IEC C19 Sheet J	4	16	208-240	20	L3-1	266	NA	2.3 (1.03)
MPXBRM-NEBD7N12	IEC C13 Sheet F	7	12	208-240	20	L1-2	266	NA	2.3 (1.03)
MPXBRM-NEBD7N23	IEC C13 Sheet F	7	12	208-240	20	L2-3	266	NA	2.3 (1.03)
MPXBRM-NEBD7N31	IEC C13 Sheet F	7	12	208-240	20	L3-1	266	NA	2.3 (1.03)
MPXBRM-NEBF4O12	IEC C19 Sheet J	4	16	240	20	L1-N	266	NA	2.3 (1.03)
MPXBRM-NEBF4O23	IEC C19 Sheet J	4	16	240	20	L2-N	266	NA	2.3 (1.03)
MPXBRM-NEBF4O31	IEC C19 Sheet J	4	16	240	20	L3-N	266	NA	2.3 (1.03)
MPXBRM-NEBF7N12	IEC C13 Sheet F	7	12	240	20	L1-N	266	NA	2.3 (1.03)
MPXBRM-NEBF7N23	IEC C13 Sheet F	7	12	240	20	L2-N	266	NA	2.3 (1.03)
MPXBRM-NEBF7N31	IEC C13 Sheet F	7	12	240	20	L3-N	266	NA	2.3 (1.03)

Table 3 MPX BRM (Branch Receptacle Module) specifications (continued)

Model #	Type	No. of Outlets	Receptacle Ratings		OCB, A	Voltage Configuration	Length, mm	Region	Weight lb. (kg)
			Ampere, A	Voltage, V					
ELEMENTARY MODULES									
European Applications									
MPXBRM-EEBC3P1N	Schuko CEE 7/4	3	16	230	20	L1-N	266	EU	2.3 (1.03)
MPXBRM-EEBC3P2N	Schuko CEE 7/4	3	16	230	20	L2-N	266	EU	2.3 (1.03)
MPXBRM-EEBC3P3N	Schuko CEE 7/4	3	16	230	20	L3-N	266	EU	2.3 (1.03)
MPXBRM-EEBC4O1N	IEC C19 Sheet J	4	16	230	20	L1-N	266	EU	2.3 (1.03)
MPXBRM-EEBC4O2N	IEC C19 Sheet J	4	16	230	20	L2-N	266	EU	2.3 (1.03)
MPXBRM-EEBC4O3N	IEC C19 Sheet J	4	16	230	20	L3-N	266	EU	2.3 (1.03)
MPXBRM-EEBC7N1N	IEC C13 Sheet F	7	10	230	20	L1-N	266	EU	2.3 (1.03)
MPXBRM-EEBC7N2N	IEC C13 Sheet F	7	10	230	20	L2-N	266	EU	2.3 (1.03)
MPXBRM-EEBC7N3N	IEC C13 Sheet F	7	10	230	20	L3-N	266	EU	2.3 (1.03)
MPXBRM-EEBC9U1N	GST18	9	16	230	20	L1-N	266	EU	2.3 (1.03)
MPXBRM-EEBC9U2N	GST18	9	16	230	20	L2-N	266	EU	2.3 (1.03)
MPXBRM-EEBC9U3N	GST18	9	16	230	20	L3-N	266	EU	2.3 (1.03)

7.4 MPX™ IPC™—Model Number Configuration

- **Prefix**: MPXIPC-
- **Region**: N=North America; E=European
- **Input Power and Connection**:
  - **Plug**: X=attached, N=none
  - **Service**: D=L5-30P; F=L6-30P; G=L21-20P; H=L21-30P; I=L22-30P; J=L15-30P; K=L14-20P; L=L14-30P; M=L7-30P
- **Cord Length**: Length in meters, two digits (e.g. 30 = 3.0 meters)

Table 4 MPX IPC (Input Power Cord) specifications

Model #	Input Ratings		Service	Length mm (ft)	Region
	Ampere, A	Voltage, V			
MPXIPC-NXD30XXX	30	120	1-phase NEMA L5-30P	3.0 (10)	NA
MPXIPC-NXF30XXX	30	208-240	1-phase NEMA L6-30P	3.0 (10)	NA
MPXIPC-NXG30XXX	20	120/208-240	3-phase NEMA L21-20P	3.0 (10)	NA
MPXIPC-NXH30XXX	30	120/208-240	3-phase NEMA L21-30P	3.0 (10)	NA
MPXIPC-NXI30XXX	30	240/415	3-phase NEMA L22-30P	3.0 (10)	NA
MPXIPC-NXJ30XXX	30	208-240	3-phase NEMA L15-30P	3.0 (10)	NA
MPXIPC-NXK30XXX	20	120/208-240	2-phase NEMA L14-20P	3.0 (10)	NA
MPXIPC-NXL30XXX	30	120/208-240	2-phase NEMA L14-30P	3.0 (10)	NA
MPXIPC-NXM30XXX	30	240	1-phase NEMA L7-30P	3.0 (10)	NA

7.5 Agency Approvals

120V and 240V Single-Phase and 120/208-240V Three-Phase North American Units

- UL60950-1: Information Technology Equipment - Safety, Part 1 General Requirements
- CSA C22.2 No. 60950-1: Information Technology Equipment - Safety, Part 1 General Requirements
- FCC, Title 47, Part 15 Subpart B for Class B operation as defined by ANSI Standard C63.4.
- ISTA Procedure 1A and 2A
- RoHS Compliant

230V Single-Phase and 400V Three-Phase European Units

- CE Markings GS mark (safety tested) according to DIN EN 60950-1 (VBE 0805-1) 2006/95/EC and EMC Directive (EMD) 2004/108/EC according to the Low-Voltage Directive (LVD)
- CE Compliant according to:
  - Low-Voltage Directive 2006/95/EC
  - Electromagnetic - Compatibility Directive 2004/108/EC (EMD)
  - RoHS Directive 2002/95/EC
  - WEE Directive 2002/96/EC
- ISTA Procedure 1 A and 2A
- ROHS and WEEE Compliant, Basic Test for Purchased Products according to International Safe Transit Association

Table 5 Electrical and environmental specifications

Power Consumption, W	22 maximum per fully configured 42U model (RPC, BDM, PEM, 6xBRM-R) 3 per RPC; 0.4 per module + 0.4 per open control (energized condition)
Maximum Ratings	240/415V 50/60Hz 63A
Insulation	Class I, Basic Earthed SELV
Electric Strength, VDC	2200
Overcurrent Protection	UL489 Overcurrent Circuit Breaker per Branch, 20A, 5000A A.I.C
Operating Temperature, °C (°F)	5-55 (41-131)
Humidity, %	10-95, non-condensing
Altitude, m (ft.)	2000 (6560)

Table 6 Metering performance

Accuracy, %	**Volts, V**	**±1**	
	Current, A (per %rated value)	**±2 from 1% to <10%**	
		±1 from 10% to 125%	
		Branch Receptacle Module (BRM™)	
Measurement, Resolution	**Power Entry Module (PEM)**	**Branch**	**Receptacle**
Phase Voltage, 0.1V	√	—	√
Line Voltage, 0.1V	√	—	—
Line Current, 0.01A	√	√	√
Neutral Current, 0.01A	√ (3-phase only)	—	—
Total Real Power, 0.1W	√	—	—
Total Real Energy, 0.1kW-hr	√	—	—
Real Power, 0.1W	—	√	√
Apparent Power, 0.1VA	—	√	√
Real Energy, 0.1kW-hr	—	√	√
Power Factor, 0.01	—	√	√
Crest Factor, 0.01	—	—	√
Frequency, 0.1Hz	√	—	—

8.0 DIMENSIONAL DRAWINGS

Figure 21 Liebert® MPX™ assembly dimensions, 1880mm (74") versions

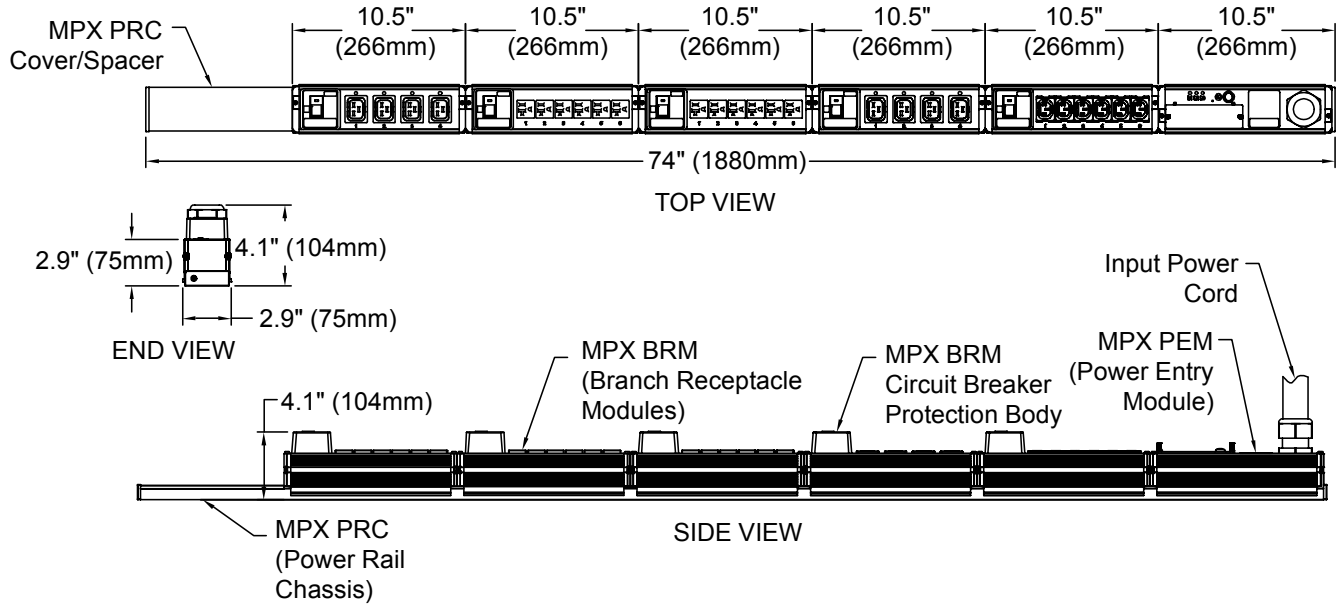


Figure 22 Liebert MPX assembly dimensions, 1035mm (40.6") versions

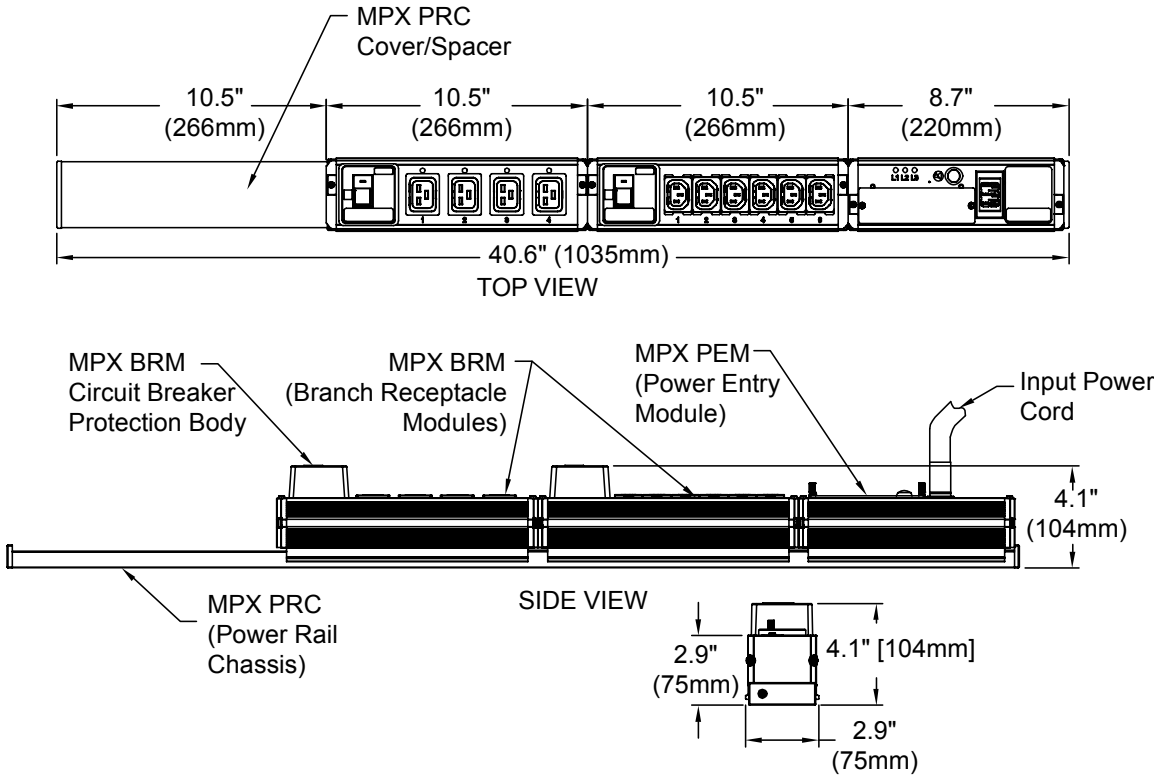
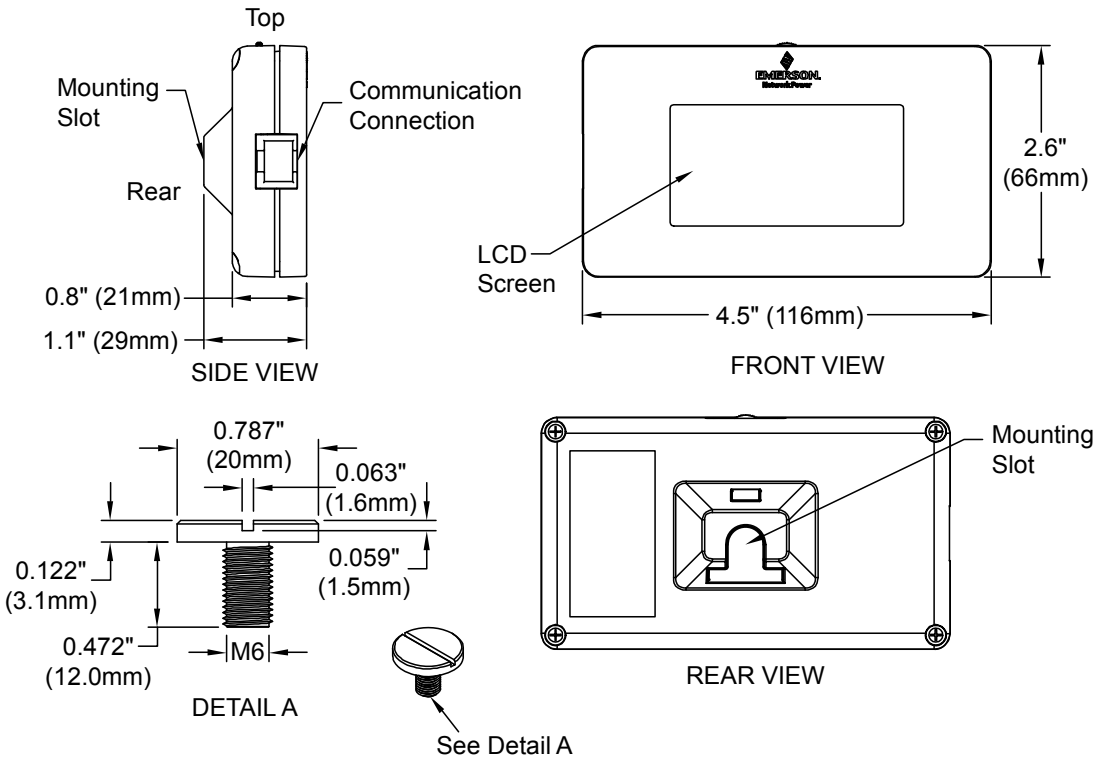


Figure 23 RPCBDM™ dimensions

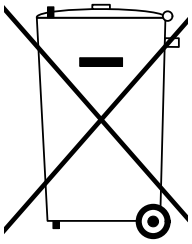


9.0 RECYCLING INFORMATION, FCC COMPLIANCE, MODIFICATIONS

Notice to European Union Customers: Disposal of Old Appliances

This product has been supplied from an environmentally aware manufacturer that complies with the Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/CE.

This product uses components that are dangerous for the environment, such as electronic cards and other electronic components. Any component that is removed must be taken to specialized collection and disposal centers. If this unit must be dismantled, this must be done by a specialized center for collection and disposal of electric and electronics appliances or other dangerous substances.



The "crossed-out wheelie bin" symbol at right is placed on this product to encourage you to recycle wherever possible. Please be environmentally responsible and recycle this product through your recycling facility at its end of life. Do not dispose of this product as unsorted municipal waste. Follow local municipal waste ordinances for proper disposal provisions to reduce the environmental impact of waste electrical and electronic equipment (WEEE).

For information regarding the scrapping of this equipment, please browse **http://www.eu.emersonnetworkpower.com** ("Products" or "Contacts" session) or call our worldwide technical support:

- **Channel Applications Engineering**: 800-222-5877, ext. 1
  Outside North America: +800 1155 4499, ext. 1
  e-mail: liebert.upstech@emerson.com
- **Monitoring Applications Engineering**: 800-222-5877, ext. 2
  Outside North America: +800 1155 4499, ext. 2
  e-mail: liebert.monitoring@emerson.com

RoHS Compliance

The Liebert® MPX™ modules comply with the Restriction of Hazardous Substances Directive (RoHS), prohibiting use of six hazardous materials manufacturing of electronics, including lead-free solder.

FCC Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment Off and On, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorienting or relocating the receiving antenna.
- Increasing the separation between the equipment and receiver.
- Connecting the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Seeking assistance from the local Emerson representative or an experienced radio/TV technician.

Do Not Modify

Users should be aware that this product must be assembled and operated as stated in this document. Modifying the Liebert MPX or any module may void the user's authority to operate the equipment.

Ensuring The High Availability Of Mission-Critical Data And Applications.

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